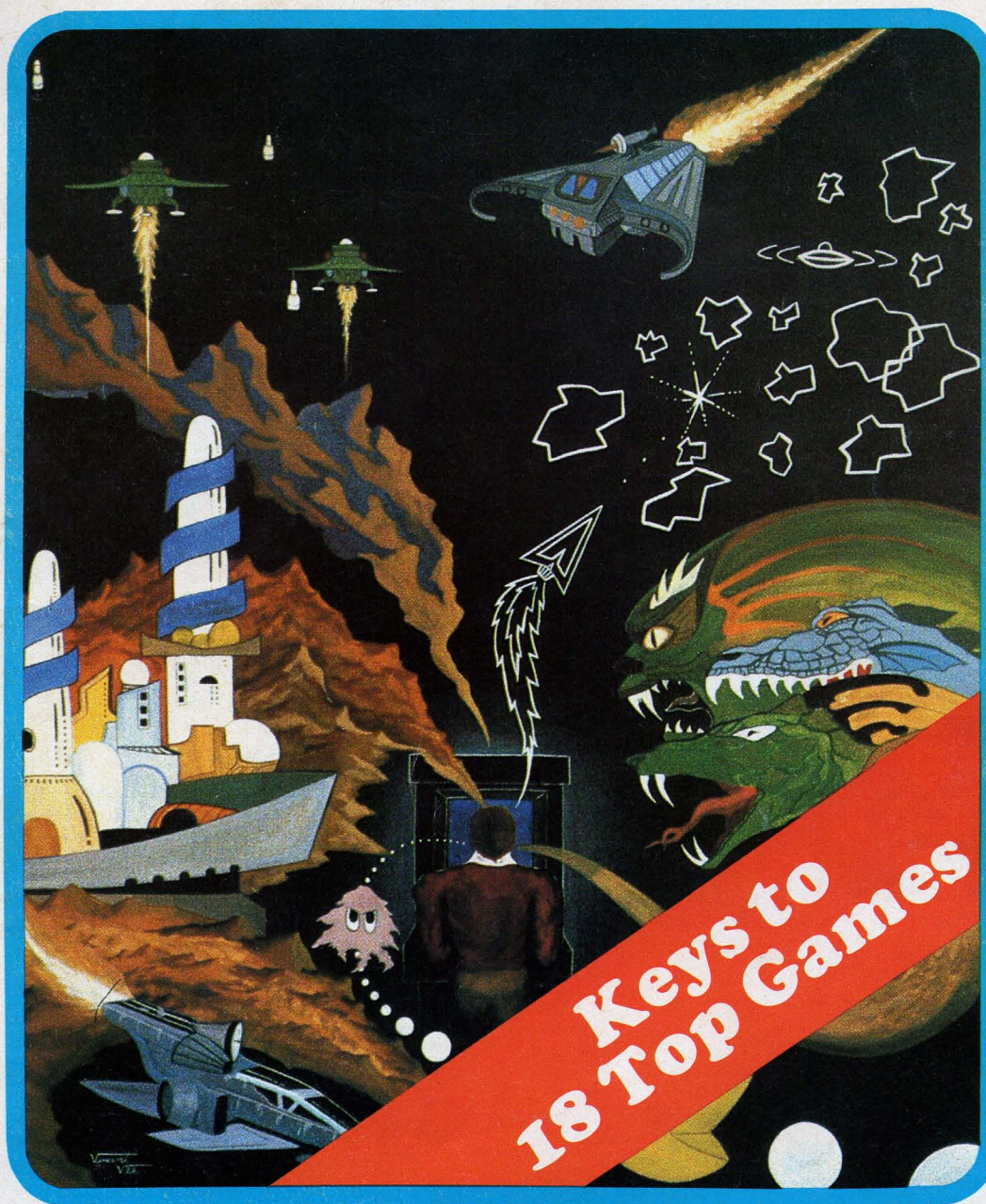


The
Ivy League Guide to

\$3.00

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WINNING AT VIDEO GAMES



Learn the Art of Video Games
from The Best and The Brightest

"Every university puts its mark on its sons to a greater or lesser degree, stamps them indelibly with one salient characteristic. With Yale, it is financial ambition; with Princeton, social arrogance; with Columbia, practicality; with Dartmouth, macho dominance. For us, gentlemen of Cantabrigia, it is pride of intellect — we have to 'shine' somehow. Somehow..."

— Anton Myrer, Harvard '44
from "The Last Convertible"

"Well, I'm a bio-chem major and have been doing real well and everything. You know, heading for honors and all that. But all I've done all spring is munch out on Pac-Man. I just can't get my head together, you know what I mean."

— Unidentified Harvard Senior
Spring, 1982

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The Ivy League Guide to WINNING at Video Games

edited by

**Joseph D. Bertagna
and
Brian Sims**

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This book is dedicated to Dennis Jolicoeur, Dartmouth '70,
the quintessential "Game Over, Player II".

Preface

I am reminded of Professor Harold Hill from Meredith Wilson's, "The Music Man." In search of the proper vehicle for his latest scam, Professor Hill arrives in River City, Iowa, and notices a new pool table being installed in town. He has found his hook.

In the musical's peppiest number, Hill describes the potential for disaster "indicated by the presence of a pool table" in, "Ya' Got Trouble." He goes on to graphically describe how the children of the community will be "fritterin' away" all their spare time at the pool hall instead of studying or doing household chores. He is very convincing. Well, at least Robert Preston's version is.

Today, there are new pool tables threatening the country and plenty of Harold Hills churning up the populace. The burning question of the 80's: how can we save our children from the evils of video games?

But wait! It's not just the children anymore. It's everyone who is being threatened by these computerized monsters. Sure, the children are pumping quarters into Pac-Man after school. But where's that salesman I was supposed to meet at 12:00 noon for lunch? He has stopped off for a few games of Donkey Kong and now he's a half hour late.

College students in the middle of exams are taking Defender breaks that last hours and put them deeper in study debt. Housewives drop off the wash and head for the Ms. Pac-Man game next door. Do you know how aggravating it is to find a laundromat without a free washer because they are all filled with some woman's wash who hasn't been back in three hours? Sure, I can take her stuff out and put it on top of the washer but I don't want to touch some strange woman's laundry. At least not under those circumstances. But of course, this problem isn't half as aggravating as the one that woman's going to have when she overdoses on Ms. Pac-Man and the laundromat closes before she can grab her laundry.

Observe the following:

ITEM — *Time* and *Newsweek* devote three cover stories between them in the spring of 1982 to the video game craze.

ITEM — The song "Pac-Man Fever" cracks the Top 40 list in April of 1982.

ITEM — Milwaukee Brewers relief pitcher Rollie Fingers, winner of the American League's Cy Young Award in 1981, is bothered by a blister on his pitching hand this past spring. The blister is the result of too much Pac-Man.

ITEM — Town after town across America refuses to license video arcades without extensive hearings before selectmen and city councils and town meetings. The video scare would make Harold Hill smile.

ITEM — Ivy League universities set the pace in legitimizing video games by installing many games in university buildings. While the games alter students social habits, they bring in profits to the universities who are hard-pressed to seek new sources of income. This poses the question: can Pac-Man save higher education?

Students at Ivy League institutions have long been considered the best and the brightest. Test scores tend to bear this out. So do the lists of cabinet members, Nobel Prize winners, and corporate executives. Add to the list a new generation of video game wizards.

Beginning in 1636 with the nation's oldest college, Harvard, the Ivies have enjoyed a tradition of firsts. Is it unusual that they assume the leadership position in video? They seem to be right there at the moment.

We set out in the spring of 1982 to test the video waters on each Ivy campus and what we discovered is presented on the following pages. There is a definite video sub-culture alive, well, and growing on each campus and while there are shared similarities, each campus does present its own personality.

Some characteristics are common. Each campus features video opportunities in university buildings as well as in commercial establishments in the town. The video emporia are usually dominated by men and where women play, Pac-Man or Ms. Pac-Man is frequently the favorite attraction. Hardcore video enthusiasts tend to master one particular game and move on to a new one. Enough masters are out there to force manufacturers to change games frequently, create new ones or adapt old favorites drastically and regularly.

The games are not fads. They aren't hula hoops or Nehru jackets. They are more like television, something that is going to last a long time and alter our lives. As it is now, you can hardly go anywhere to avoid them. Restaurants, laundromats, movie theaters. You name it. And of course, the home video games are making millions of dollars already and causing parents to set up strict house rules for usage. Just like parents have done for years with television.

Actually, it's the television generation that has taken video games to heart. After all those years of passively watching the boob tube, now they have a chance to fight back, to react. That's what these video games are. They are boxes that taunt and challenge and give you a chance to give it right back. And millions of people are doing just that.

The video scene is changing so rapidly that some of the references on the following pages may already be dated. For example, average or high scores listed for certain games may lose relevance as games change and new models are introduced. All the reported scores were observed in the summer of 1982.

But the strategies are sound. They have been proven by some of those best and brightest whose skill has kept their video habit from eating away at their tuition savings. Now they have shared their secrets with you so you can follow in their footsteps.

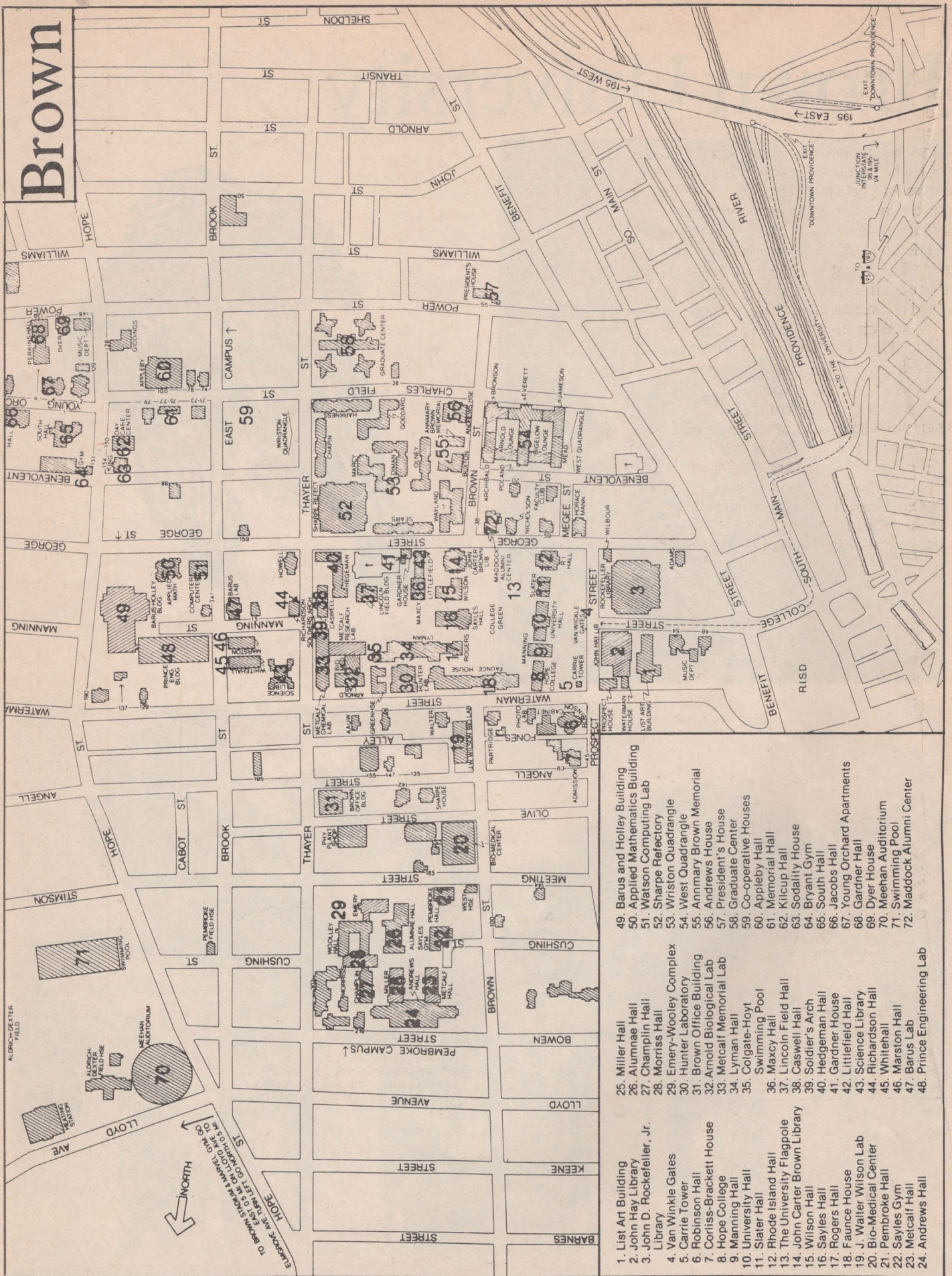
All you have to do is get your college board scores up and the university of your choice is yours for the asking. Good luck.

The Schools

Brown University



Brown



- | | | |
|-------------------------------------|----------------------------|----------------------------------|
| 1. List Art Building | 25. Miller Hall | 49. Barus and Holley Building |
| 2. John Hay Library | 26. Alumnae Hall | 50. Applied Mathematics Building |
| 3. John D. Rockefeller, Jr. Library | 27. Champlin Hall | 51. Watson Computing Lab |
| 4. Van Winkle Gates | 28. Morriss Hall | 52. Sharpe Refectory |
| 5. Carrie Tower | 29. Emory-Woolley Complex | 53. Wriston Quadrangle |
| 6. Robinson Hall | 30. Hunter Laboratory | 54. West Quadrangle |
| 7. Corliss-Brackett House | 31. Brown Office Building | 55. Annmary Brown Memorial |
| 8. Hope College | 32. Arnold Biological Lab | 56. Andrews House |
| 9. Manning Hall | 33. Meicalf Memorial Lab | 57. President's House |
| 10. University Hall | 34. Lyman Hall | 58. Graduate Center |
| 11. Slater Hall | 35. Colgate-Hoyt | 59. Co-operative Houses |
| 12. Rhode Island Hall | 36. Swimming Pool | 60. Appleby Hall |
| 13. The University Flagpole | 37. Lincoln Field Hall | 61. Memorial Hall |
| 14. John Carter Brown Library | 38. Caswell Hall | 62. Kilcup Hall |
| 15. Wilson Hall | 39. Soldier's Arch | 63. Sodality House |
| 16. Sayles Hall | 40. Hedgeman Hall | 64. Bryant Gym |
| 17. Rogers Hall | 41. Gardner House | 65. South Hall |
| 18. Faunce House | 42. Littlefield Hall | 66. Jacobs Hall |
| 19. J. Walter Wilson Lab | 43. Science Library | 67. Young Orchard Apartments |
| 20. Bio-Medical Center | 44. Richardson Hall | 68. Gardner Hall |
| 21. Pembroke Hall | 45. Whitehall | 69. Dyer House |
| 22. Sayles Gym | 46. Marston Hall | 70. Meehan Auditorium |
| 23. Meicalf Hall | 47. Barus Lab | 71. Swimming Pool |
| 24. Andrews Hall | 48. Prince Engineering Lab | 72. Maddock Alumni Center |

BROWN

<i>Location:</i>	Providence, RI
<i>Nickname:</i>	The Bruins
<i>Colors:</i>	Seal Brown, Cardinal Red, and White
<i>Enrollment:</i>	5,600
<i>Best Athletic Team:</i>	Softball
<i>President:</i>	Howard R. Swearer, Ph.D.
<i>Famous Alumni:</i>	Joe Paterno and John F. Kennedy, Jr.
<i>School Song:</i>	We Are Ever True To Brown

Many of the Ivy League colleges share the fact that they were originally set up in one name and at one location and then moved elsewhere and took on the name that lives on to today. This is all very well and good but fails to explain why Brown University ended up in Providence, Rhode Island. After all, what could have possibly happened in Warren, Rhode Island in 1770 that made Providence look good?

The original Rhode Island College, the seventh college established in the colonies, was indeed born in Warren back in 1764 before becoming Brown University (in recognition of the contributions of Nicholas Brown) in 1770 in Providence. Over the years, Brown has worked extremely hard to gain a reputation for outstanding academic opportunities and disappointing athletic teams. The immediate future offers every sign that both traditions will continue uninterrupted.

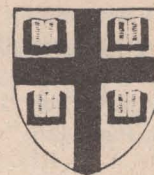
A new tradition in the process of being established is that of the video game culture on the Brown campus. Ask almost any Brown student to show you the best place to play video games and the answer will most likely be the Graduate Center Bar.

There are a few fraternities and other hangouts which have a machine or two but none stack up to the "GCB". This is where the real enthusiasts play. Some are so serious here, it is said, that their emotional high at the GCB matches the sensation of walking through Van Wickles Gates which are opened only twice a year, for the incoming freshmen and the outgoing seniors.

Finding the GCB requires a little help. Located on Thayer Street, between Charlesfield and Power, the bar can be difficult to find. Halfway down the block, you descend a small flight of stairs and then squeeze around a spiral staircase. The spiral stairs have been known to throw many a game player off the track. The black door with the small sign on it is your target. There are no other signs to guide you so you'll have to follow these crude directions to the word.

The GCB is a private club. You don't need a jacket and tie, though. After all, this is Brown, not Princeton. The membership fee isn't much and only students and faculty are allowed to join. Members can bring guests so you can befriend a Bruin and talk your way in.

Upon entering, you'll find the game room off to the left. This is where Brown's most avid video players can be found. And they are indeed avid. After all, despite what Penn and Columbia might think, Brown is a city school and there are other things to do, unlike Dartmouth and



Cornell where the options are fewer in number.

Most of the light in the room comes from the games themselves. It certainly wouldn't be called an attractive room but it serves its purpose. Perhaps if the games had arrived sooner in our time, Rockefeller would have had an arcade named after him instead of a library. Heaven knows an arcade would get more use than his library does.

There are nine video machines here along with one pinball machine and a foosball table. As is the case across the nation, this game room has made the transition from many pinball games to a token, seldom used model that is a pathetic sight to see. Where have all the Pinball Wizards gone, anyway?

As is also the case across the country, games are being changed here, like the new Pac-Man game with its many exits and lack of easy to figure patterns. Chuck and Jed were among the first to try the new game. Chuck comes to the GCB to take his mind off other things. Like exams, papers and the Falkland Islands.

"When you're a senior, you know all the faces," says Chuck. "Instead of socializing elsewhere, the GCB offers another alternative."

Jed takes the games more seriously. He says, "I have a habit to support. I just have to play four or five times a week, you know? In the mornings, I do exercises and lift weights. It's all in the wrists, you understand. The weights also give you stamina and that can separate the men from the boys."

Jed's dedication to the games has had a disrupting effect on his life. He started playing games at the fraternity he's in. Then, instead of hitting the library, it was the GCB. And soon he was going through more and more quarters.

"My grades started to go downhill first," says Jed. "Then my girlfriend said it was going to have to be her or Space Invaders. So I broke up with her."

Doug, who was showing off on the Pac-Man game while Jed waited on deck, has his own theory on women and video games.

"It's too expensive to meet a girl and have to teach her how to play these games," says Doug. "You have to find one who already knows how to play."

The busiest time of day at the GCB is between 11 p.m. and 1 a.m. That's when the post-library or post-movie crowd fills the place and creates lines at the various machines. The biggest night of all is Thursday, the unofficial start of the weekend. With few campus activities planned on a Thursday, the video games are particularly popular then.

A few observations from the sidelines:

- Defender and Battlezone are the most popular here
- There are few female competitors though the few

female regulars are as intense as any of the players. Vivian is one of these who claims to put in more than ten hours each week. "It's a social thing to be here. I've made quite a few friends," she says. "Other women? I don't know why they stay away. I guess the games are too violent, except for Pac-Man."

There is no game room operator. The machines are company owned and they do all the servicing. There's no machine to change the bills either. Players must traipse across to the bar section and get quarters from the bartender. Jeff is one of the bartenders and he has made a number of observations about the players. Says Jeff: "There's no typical player. They come in all shapes and sizes and spend all sorts of money. Most spend between \$3-\$4 per day. Just take a look at their eyes. They seem to glow and you know they want quarters, not beer. You know, sometimes they really have to swallow their pride. Like when they get \$4 in quarters and come back in half an hour. I don't mind giving them change. I just wish they'd drink more beer."

The low amount of alcohol consumed is surprising at first but then one realizes that it is indicative of how

seriously the games are taken by the players. Video games are quickly becoming an integral part of Brown's social life and there has even been some talk about creating a new intercollegiate sport. The crowds in the game room are already rivaling those at some of the varsity games. But that might say more about the varsities than the video games.

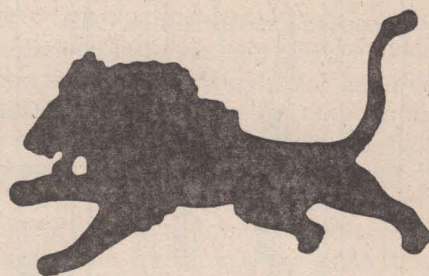
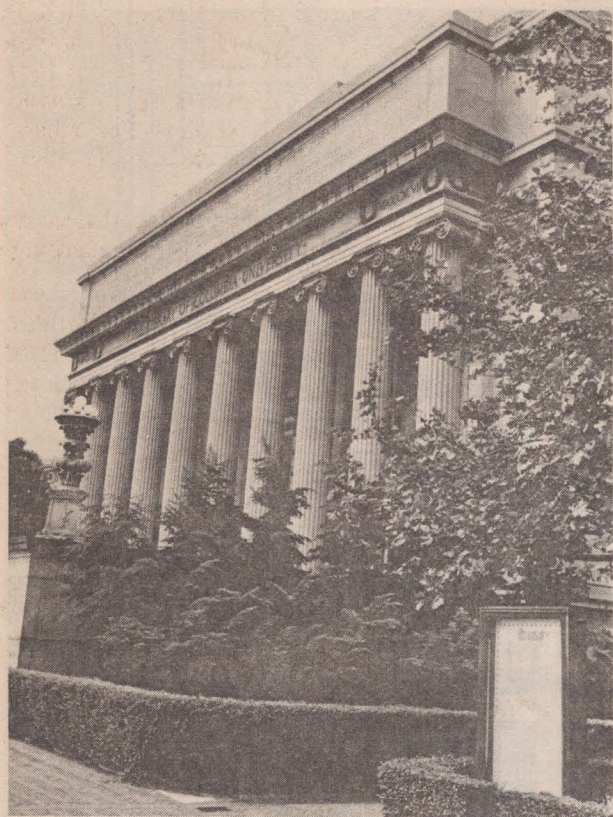
There is no truth to the rumor, however, that admissions people will be evaluating PPQ's (Points Per Quarter) instead of SAT's when the Class of 1987 applies for admission.

These things change all the time but for the sake of comparison, here are some of Brown's best scores from the Spring of 1982:

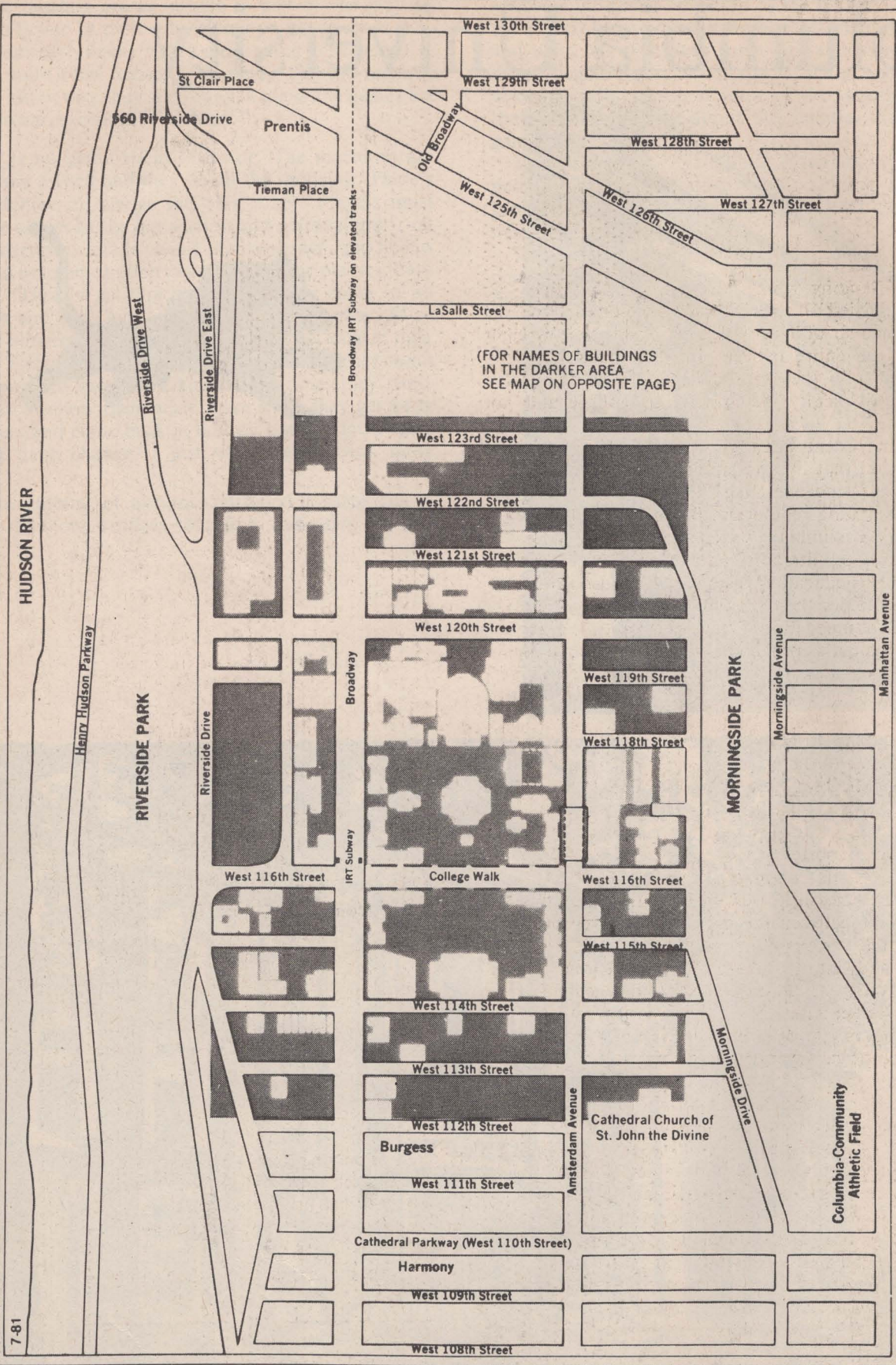
Asteroids	38,380
Battlezone	302,000
Defender	484,000
Missile Command	454,930
Pac-Man*	52,000
Space Invaders	5,000
Super Cobra	27,430
Tempest	317,380

*This was on second day of new game. Old machine had high of 284,360

Columbia University



Columbia



COLUMBIA

<i>Location:</i>	New York City
<i>Nickname:</i>	Lions
<i>Colors:</i>	Light Blue and White
<i>Enrollment:</i>	2,700
<i>Best Athletic Team:</i>	Wrestling, soccer
<i>President:</i>	Michael I. Sovern
<i>Famous Alumni:</i>	Alexander Hamilton and Jim McMillan
<i>School Song:</i>	Roar Lion Roar

Imagine attending King's College in 1754, the fifth college established in the American colonies. Imagine meeting in the rear of Trinity Church as one of only eight students in the entire college. Imagine being the only faculty member in the entire college. No wait, imagine being the only faculty member in the college and not getting tenure.

Those eight students at King's College in 1754 began the proud tradition that lives today at Columbia University. Columbia was founded as King's College but today enjoys its own outstanding reputation in the Ivy League. With 2700 students, Columbia is the smallest of the Ivy League schools but, as their literature states, is "second to none in the quality of its education." Its literature also notes that Columbia is "older than the nation itself." But it takes nowhere near as much time to travel through.

With Columbia's proximity to Broadway, Lincoln Center, Yankee Stadium, the Metropolitan Museum of Art and Madison Square Garden (not to mention Nunzio's Clam Bar and Massage Parlor), one might wonder why any of the young Lions would even consider devoting considerable time to the video culture. "It's a way to blow off some steam," says one Columbia student. "It makes for a convenient and mindless study break," says another. "I thought I told you to get away from me. I'm not talking to any frigging reporter," says a third, never taking his eyes from the Missile Command screen.

For whatever reason, the video game craze has hit Columbia right between the eyes. Only the beleaguered brothers of the various fraternities hold out as notable non-players and that is probably because they have more constructive things to do like redecorating their decaying 114th Street townhouses. The fraternities will join in the video game boom just as soon as enough of them manage to steal an arcade game of their very own.

In the meantime, it is left to the Columbia masses to do battle with alien invaders and insidious monsters. A favorite Lion battleground is the Student Center in the basement of Ferris Booth Hall. The large, brightly lit recreation room holds several pool tables but the crowds come to play the dozen or so video games that are lined up along three walls. As at most on-campus arcades, the games at Booth use tokens which can be bought for four for a dollar from an automated bill changer.

Patrons at Booth are overwhelmingly male and tend to be somewhat nerdy. Of course, if anyone hears you say something to that effect, he'll likely blow your socks off at Stargate.

One of the big guns at Booth is known to most regulars



as "JFK". "JFK" is a hardcore's hardcore. With a best of over a million on Defender and over 250,000 on Pac-Man, he can play and excel at virtually any game on the market. He should be able to. The junior computer major has been playing video games since he was in high school and currently plays for three to four hours a day every day.

"JFK" says he's taking only one course this semester while holding an outside job. With little studying to do, he spends most of his free time in the game room. "I used to skip classes in high school and go to the local arcade," admits "JFK". "Once I played Space Invaders for eight straight hours."

Around dinnertime, or later on Thursdays, Fridays and Saturdays when an adjoining pub is open, "JFK" and some of the Booth regulars can be found at nearby John Jay Hall. John Jay is also a favorite of football players and other jocks who often come there with female friends. John Jay thus offers less games but more women than Booth, an important difference at an all male school like Columbia.* Since most of the hardcores play both places, the high scores are equally impressive although John Jay is reputed to have an easier Defender.

The football-playing contingent seems to be a lot more competitive at video games than they are at football. "Maybe it'll help improve my reflexes," says a defensive back without much conviction. "Yeah, but look what it's done to his eyesight," laughs a teammate after the defensive back has left with a feminine admirer.

The best place for the social video game player is without a doubt the Barnard Student Center, across the street from the Columbia campus in McIntosh Hall. Although there are only four games in McIntosh, there are disproportionate numbers of students crowding around them. This is explained in part by the fact that the games are all Atari favorites.

One look at the clientele is more illuminating: half are Barnard women and half are Columbia men trying to score more than points on Centipede. Typical of the Barnard women is Mary who spends a couple of hours a day playing the games at McIntosh.

"Since I've become a senior, I think I've doubled my average playing time," Mary admits ruefully. "I just can't force myself to sit and study anymore."

"It bothers her so much that she's going to Jamaica next week," adds a friend sarcastically, "even though Spring Break was over *last* week."

"I wonder if they have video games in Jamaica?" muses Mary.

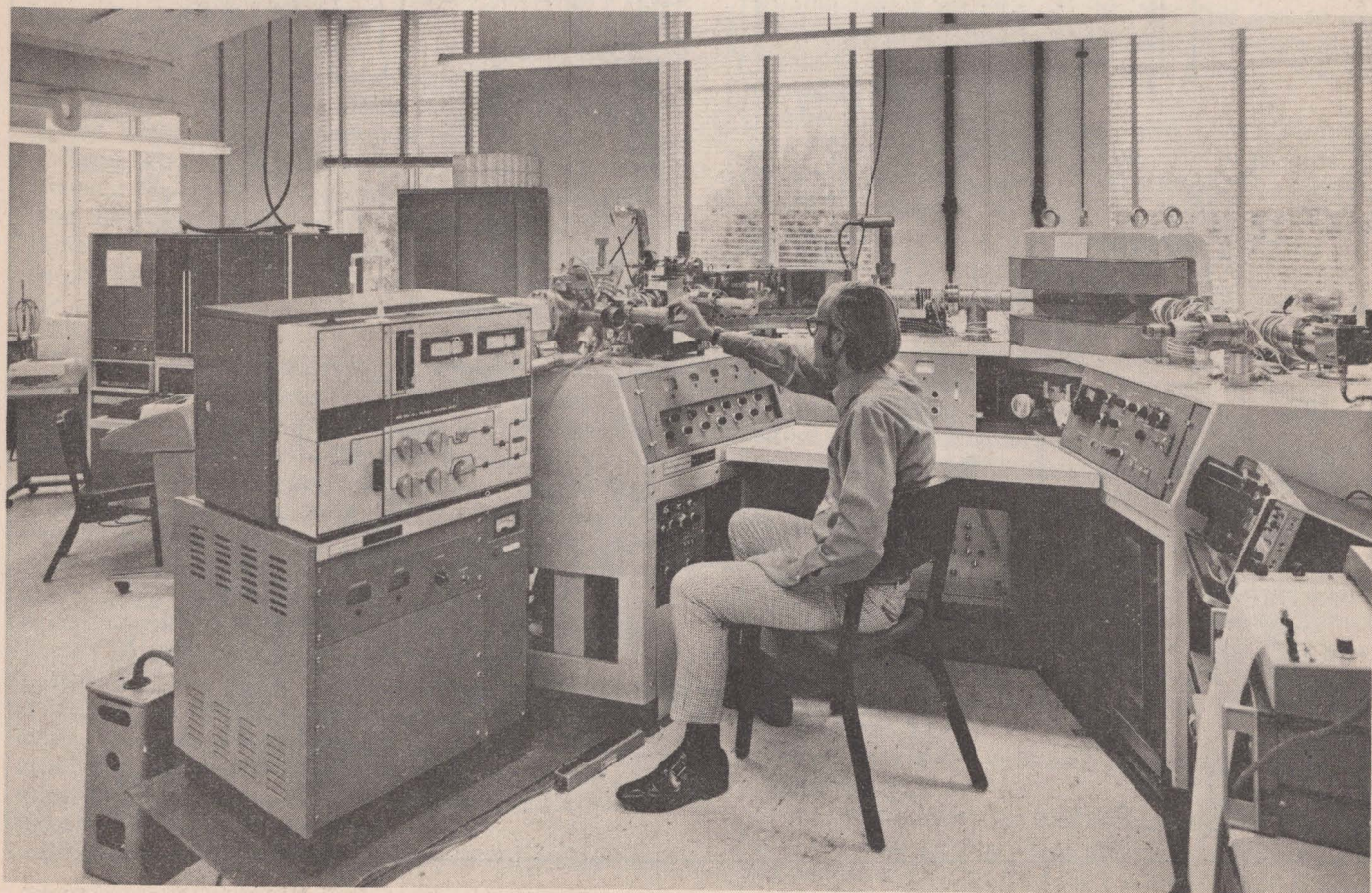
*Columbia officials have announced plans to become coeducational in the near future.

Outside of Booth's dozen games, John Jay's half dozen and McIntosh's four, there aren't any other major hangouts for the mainstream Columbia video gamer. There are, however, two nearby bars worth mentioning. The West End Cafe, on Broadway between 113th and 114th Streets, is a large bar that serves nothing on tap but does have live entertainment in addition to three video games. The Third Phase, on 111th Street off Broadway, has a more collegiate clientele and more popular games. Either establishment is just the place for the Columbia student who feels the need to bolster his courage with alcohol before taking on the evil alien hordes.

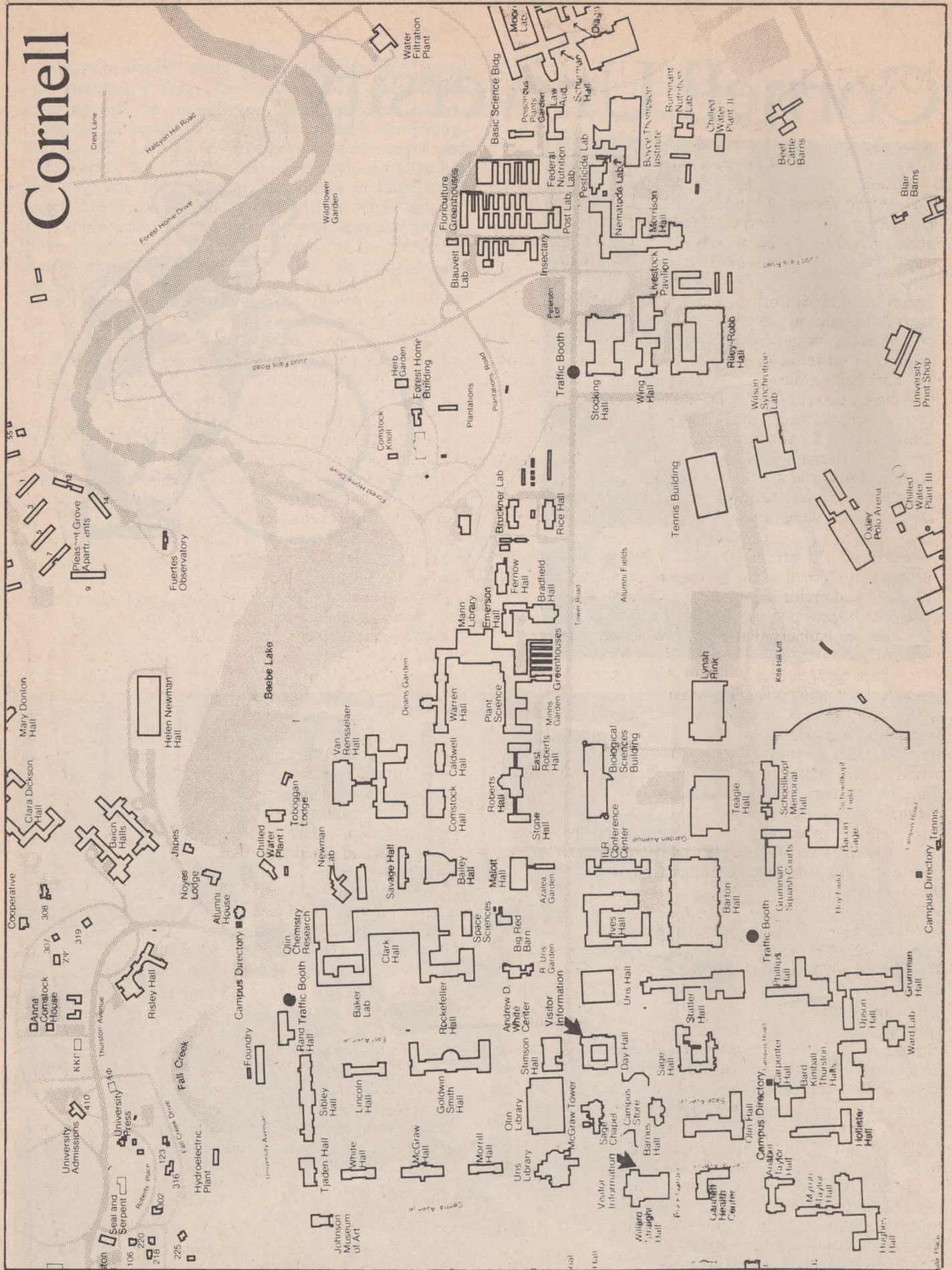
"JFK" Tips: How To Get Good At Defender

1. Use your skanner!
2. Never stop firing.
3. Use reverse to rescue men after killing their captors.
4. Get a two-foot length of strong thread (not wire). Tightly wind about six inches of it around your quarter or token and tie at the top. Use to play unlimited free games until you are good.

Cornell University

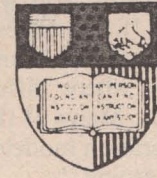


Cornell



CORNELL

<i>Location:</i>	Ithaca, NY
<i>Nickname:</i>	The Big Red
<i>Colors:</i>	Carnelian and White
<i>Enrollment:</i>	11,800
<i>Best Athletic Team:</i>	Lacrosse
<i>President:</i>	Frank H.T. Rhodes
<i>Famous Alumni:</i>	Kurt Vonnegut and Ed Marinaro
<i>School Song:</i>	Give My Regards To Broadway



Founded in 1865, Cornell University is second to none in the Ivy League in offering diversified academic opportunities for its students. From high school, one can be admitted to no fewer than seven Cornell "colleges": the New York State College of Agriculture and Life Sciences, the College of Architecture, Art and Planning, the College of Arts and Sciences, the College of Engineering, the School of Hotel Administration, the New York State College of Human Ecology and the New York State School of Industrial and Labor Relations. If Ezra Cornell were alive today, he would be very proud. But then again, if Ezra Cornell were alive today, he would be very, very old, wouldn't he.

With all of these offerings, it's a shame that some people still think of Cornell as the place where Canadian hockey players go and major in agriculture. And it's a shame that those poor hockey players have been known to visit enemy rinks and see banners that read, "Welcome Future Farmers of Canada!" And it's even a bigger shame that some writer keeps resurrecting stories like this just to get a cheap laugh. But, what are you going to do?

The diversity at Cornell is also reflected in the many places where students play video games in Ithaca. There are two spots downtown (down the hill from Cornell's perch) where both townies and Cornell (and Ithaca College) students play. There is a big arcade at the Pyramid Mall, often frequented by Ithaca's younger set. And there are three noteworthy locations on the Cornell campus itself. Two of these are in the two Campus Unions (North Campus and West Campus Union) and the third, the most interesting and bizarre, is a place called "Games R Fun".

The real video life at Cornell can be found at "Games R Fun". Located on College Avenue, across the street from Sam Gould's College Store, "Games R Fun" began as a disco known as "Level Three" back in 1979. The first disco in Ithaca's Collegetown area, "Level Three" bombed in a hurry and the owner turned to video in the summer of 1980. The owner found success with "Games R Fun" just as quickly as he found failure with "Level Three". As a reminder of the disco days, many of the disco lights and colored ceiling panels remain intact from "Level Three". But after that, the place is pure videoland.

Some 53 games fill the arcade with four Pac-Mans, three Asteroids and three Centipedes leading the pack at last count. Seven pinball machines survive but, as is the case in most places, they are idle more often than the rest. The noise level can drive out those who aren't hardcores but there are few of those these days.

People often talk about the intensity of Cornellians. It is

reflected everywhere, particularly in the many beautiful gorges high above Cayuga's waters. These are the beautiful gorges that reportedly claim many lives when that intensity leads some to half gainers off the suspension bridges. Intensity is also the showcased quality in "Games R Fun".

"Man, I've been waiting a half hour just to play Missile Command," offers Paul, a fairly typical Cornell videoist. Waiting thirty minutes for any game is a good sign of one's commitment. Of course, waiting thirty minutes for Missile Command also indicates that Paul hasn't moved on to some of the more challenging machines.

The typical Cornell game player is male, with fairly long hair, jeans, sneakers, and either a rock t-shirt or button-down shirt hanging out over his pants. It's not a real preppie hangout. The predominant player is either from the acid rock generation or the type commonly referred to as "enginurds", computer freaks from the College of Engineering. As one acid rocker named Tom commented without taking his eyes off the Asteroids Deluxe game, "Like, you don't find Susie Sorority or the president of Sigma Chi in here, you know what I mean? You don't come here for 'facetime'."

After Tom took a break, he offered a few more insights into Cornell's video world. "You have to be born after 1965 to play video games," he offered. "And the way games are changing so fast these days, you can't be a master of all anymore. You really have to pick your one or two games and practice on them."

John, who plays about five hours a week, feels hooked with video but only when he's at school. "When I'm home, I don't play much and I don't really miss it," he said. "But when I'm at Cornell, I just have to play."

John then offered a chilling history lesson. "This video culture is just representative of the times. The hula hoop was a big thing in the 50's because the 50's didn't make any sense. But this is an era of technology. In today's era, you can build just about anything and then destroy what you've built in a matter of seconds."

Gee, what a great idea. See you at the meltdown, John.

Steve, who claims to spend only three dollars each week, offered an equally upbeat theory on the games. Said Steve, "I love being able to kill your enemies. It's an escape and you get a lot of satisfaction just being able to kill and destroy."

Almost makes you wish these kids would move into the neighborhood.

Then there is Miles. An Englishman studying at Cornell, Miles has been playing video games for nearly ten years and continues to play four days a week. He is a serious

player but one without any of the militant overtones we have just heard.

"I started playing back in 1973 when Atari put out a game called Space Wars," says Miles. "Then I moved to Ping pong, Space Invaders, Pac-Man and the rest. Right now we're in the stage where different generations of machines are coming out. Many of the new machines are just second or third generation models of such basic games as Space Invaders or Asteroids."

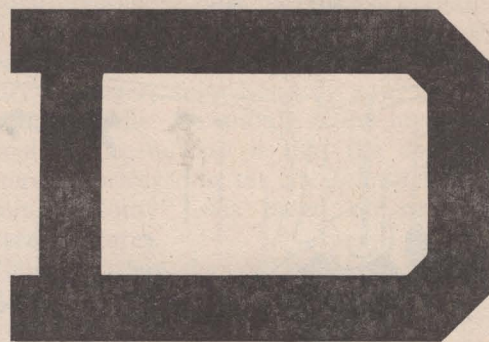
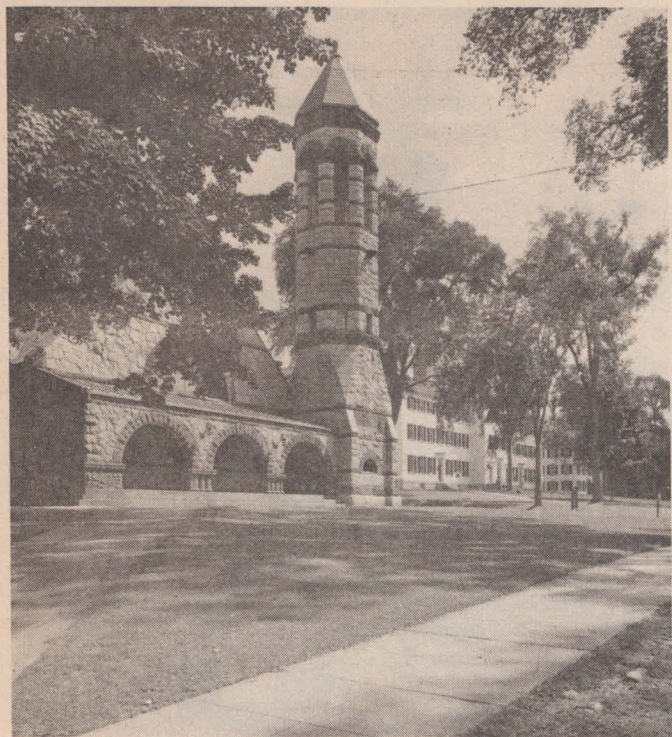
Commenting on the homeland he says, "There are no

large arcades in England like this place right now. Just plenty of small spots. But I think that the people who play the games are the same around the world. And I think the future of video games is sound. It's cheap, competitive and you can play by yourself."

Finally, Miles restated what many others had offered. "This is totally the TV generation here. You don't see anyone here who wasn't raised on television."

And so it is at Cornell.

Dartmouth College



Dartmouth

The map illustrates the layout of Dartmouth College, featuring a grid of streets and a variety of academic and residential buildings. Key locations include the Gilman Biomedical Center, the Tuck School, the Thayer School, and the River Cluster. The map also shows the campus's proximity to the city of Hanover, with streets like North Main Street and South Main Street. A north arrow is positioned in the lower-left corner, and a scale bar is located in the lower-right corner.

DARTMOUTH

<i>Location:</i>	Hanover, NH
<i>Nickname:</i>	Big Green
<i>Colors:</i>	Dartmouth Green and White
<i>Enrollment:</i>	4,000
<i>Best Athletic Team:</i>	Football
<i>President:</i>	David T. McLaughlin
<i>Famous Alumni:</i>	Daniel Webster and Nelson Rockefeller
<i>School Song:</i>	Dartmouth's In Town Again

Dartmouth College, the nation's ninth oldest college and the northernmost of the eight Ivy League schools, was founded in the summer of 1770 by the Reverend Eleazar Wheelock, a missionary with a vision of civilizing the wilderness. Despite evidence to the contrary in the small town of Hanover, New Hampshire, his dream lives on.

It is not certain where Dartmouth gained its image of a breeding ground for beer drinking, women chasing football jocks. Perhaps it is born in years of graduating hundreds of beer drinking, women chasing football jocks. But that's not fair. Accurate perhaps. But certainly not fair.

Dartmouth would rather be recognized for the quality education it offers its 4,000 undergraduates and the graduate students who attend the nation's fourth oldest medical school, the Amos Tuck School of Business Administration (first in the nation) or the Thayer School of Engineering which was founded in 1871. Dartmouth would rather be known for its innovative Dartmouth Plan which enables undergraduates to enroll in any three of the four academic terms that run throughout the calendar year. But when you get right down to it, wouldn't you rather hear about those beer drinking, women chasing football jocks? Of course you would. But that's not what this book is all about.

We are concerned here with Dartmouth's reputation as a collegiate center for video game enthusiasts. Dartmouth officially entered the age of video games in 1980 with the advent of two arcades, Put's Alley and Collis Hall. The first is independently owned; the second is owned by the college.

Dartmouth's campus in Hanover is the most rural of the Ivy schools. Main Street in Hanover, where Put's Alley is located, is only a half mile long and without the college, it would disappear. In fact, there are some who claim that it did for two weeks in late August of 1937.

The center of the campus life is the college green. Surrounding the green are all of the college's major buildings including Collis Hall, the other home of video games at Dartmouth, on the western side of the green. For those not interested in video games, it is on the green that Dartmouth pumps itself up for football games in the fall by the construction of 70-foot bonfires out of railroad ties before each home game. In the winter, the bonfires are replaced with giant snow and ice sculptures for Dartmouth's February Winter Carnival.*

Despite the fact that there is enough ivy on Dartmouth's walls to build at least three more colleges — if that's your idea of a good time — most Dartmouth students tend to deny their Ivy League nature and especially the school's



reputed preppiness. Said one student recently, "Harvard and Yale can take their pride in being the spawning grounds for Cabots, Lowells, Buckleys, God and even Henry Kissinger, John Kennedy and, more importantly, Theodore White. Dartmouth is the breeding ground for animals." Legend has it that the character of Bluto Blutarsky portrayed by the late John Belushi in the movie "Animal House" was based on certain Dartmouth fraternity figures.

Those who deny the Ivy League are only partially right. It is easier to get hamburgers, pizza and beer in Hanover than it is to find yogurt, quiche, or capucino. Nonetheless, walking through campus is a bit like thumbing through the L.L. Bean Catalogue. There are enough khakis, chamois shirts and duck boots on campus to dress George Plimpton for the rest of his life. Preppy or not, Bluto Blutarsky would feel more at home in Hanover than on any other Ivy campus.

What all this has to do with video games I'm not sure. But there is plenty of action on campus that does. Collis Hall is the official Big Green video emporium. On the street level of Collis Hall is a student cafeteria and lounge. The games are in a large, well lit, carpeted room in the basement of the building. Collis sports only seven video machines. Nonetheless, over 200,000 quarters per year find their way into the coin boxes of Defender, Tempest, Pac-Man, Asteroids, Scramble, Space Invaders and Bezerk. The games change from time to time as evidenced by the recent departure of Missile Command which the students had mastered.

Making up for Collis' lack of variety is Put's Alley. Put's is also in a basement and has a small floor space of approximately 15' x 30'. The machines at Put's are lined up touching each other along two walls. Walking between them is like walking through a narrow corridor. To play, you have to stand in front of your own machine. To stand to the side is to stand in front of someone else's machine. To stand in front of someone else's machine is to risk being pummeled into a brief coma.

At Put's there are only two twenty-five watters in the ceiling. The rest of the lights come from the machines. If Put's were a pool hall, Minnesota Fats might have played here. But then again, he did awful on his SAT's. When you enter Put's, the noise, lights and people make you want to play. More importantly, you want to lay your money down and prove that you are the best in the house.

There are plenty of choices at Put's with more than 17 different games. Tokens are used and plenty of them. On one visit recently more than thirty dollars of tokens were purchased in one fifteen minute period. Put's is open to the general public and during the day, most tokens are purchased by high school students. At night, however, Put's might just as well be another college hall.

The busiest times at Collis and Put's are before and after supper. (Dartmouth's main dining hall is almost next door to Collis. The students wandering through the hall are either avoiding the dining hall food or, having just eaten it, are wandering in a state of disorientation.) The king of all video nights is Saturday.

One college senior points out, "Dartmouth is not like Harvard or Penn. We don't have a whole city to run to. Only one third of the school is co-ed. Before the games went in, there was only road tripping, beer, or boredom. To tell you the truth, the games are better than half the girls at Colby thirty miles away. At least now we have a choice."

The atmosphere in Collis Hall ranges from casual to tense to highly competitive. Every two hours during the main playing hours a new student takes over making change and keeping order in Collis.

The first one interviewed, a thin fellow named Billie, said that it was a great job. "It's a little like being a Greek god. You sit here on Mount Olympus watching the world. The games are like life. Take Tempest, for example. You know you're going to die. Just like life. Yet you try to conquer and do the best you can while you're living," says Billie. Billie was later seen skipping up Main Street to his Nerf room beyond the green.

Mike is another worker who likes to watch the players. "Take a look at that guy playing Pac-Man," says Mike. "Two hands, lots of body motion, nervous as hell. He just told someone to stop whistling. He'll never make it. We try to keep sharp objects away from him at all times, particularly later in the evening."

Mike's attitude toward the game is more relaxed. He believes that you can tell a person's character by the way he approaches the games.

"It's not just a matter of coordination," offers Mike. "Confident people play with confidence even if they get killed. It's a matter of approach. Perhaps pre-med students ought to be forced to play as part of their medical school exam. You could test a student's potential nervousness before anyone gets to the operating room." Mike is a good player and a pre-med student.

Perhaps the coolest player in Collis Hall is big but quiet Rick. Rick also works at Collis and readily admits that it takes hours of observation and lots of quarters to get good at the games. He spends \$10 per week.

Rick's specialty is Defender. On one quarter he can easily play between twenty and forty-five minutes. On the day we talked with him he held the top five scores on the Collis Defender game. That was over 500,000 points. On other machines he has scored over 900,000 points. "The machine here is a little tougher," says Rick.

Rick is smooth. Not a motion is wasted. Watching Rick play is like watching a ballet. Except Rick hardly ever wears a tutu.

"Different strokes for different folks," says Rick. "I like Defender because it's fast. Pac-Man, on the other hand, is a game of patience. You have to be willing to wait and set up the ghosts so that all four can be eaten. Women are more patient than men. That might be why they like Pac-Man."

Rick also indicated that someone had told him that there

was something feminine about the way the large gold dot opens up and swallows the small dots. "I can't see it but maybe," says Rick, himself a regular 60,000 to 80,000 point Pac-Man player.

Another example of different strokes is Tempest. According to Rick, Tempest is the most unfair of games. "In the first place, it is almost impossible not to get killed in under three minutes," he says. "Some people like the challenge of a short game and quick results. Another unfair part comes in the way the game starts. You can only score big if you play a difficult skill level. If the machine sits cold for longer than three to five minutes, it will not let you start at a skill level higher than nine. By pumping quarters in, a good player can work the machine up to a skill level of 25 or 30. A mediocre player can then enter his one quarter, start at 25, last one round, and outscore the good player because he was allowed to start at a higher skill level."

Tien is living proof of how tense and serious the games can be. On his right arm is a scar which was earned while hitting an Asteroids machine after a particularly disappointing round.

Tien likes to play because he says the games relieve frustration. The guns, the shooting, the success all add up to satisfaction. "The games are not a waste of time," says the militant Tien who allegedly tried to recapture the Falklands for Great Britain all by himself.

In one of Tien's government classes, students discussed the games with their professor. They came up with a Marxist connection, concluding that the games are the ultimate capitalist weapon. The bourgeoisie invented the games to decrease worker alienation.

It should be added here that while a third of Dartmouth is female, relatively few women seem to play. A brief survey of non-players indicates that money and fear of looking stupid are the main reasons. But that fails to explain the presence of so many wealthy people who chose to spend four years in Hanover, New Hampshire.

Another problem may be that most games involve shooting, a violent action that may repel more women than men. Pac-Man and Donkeykong are the exceptions and these seem more popular among women.

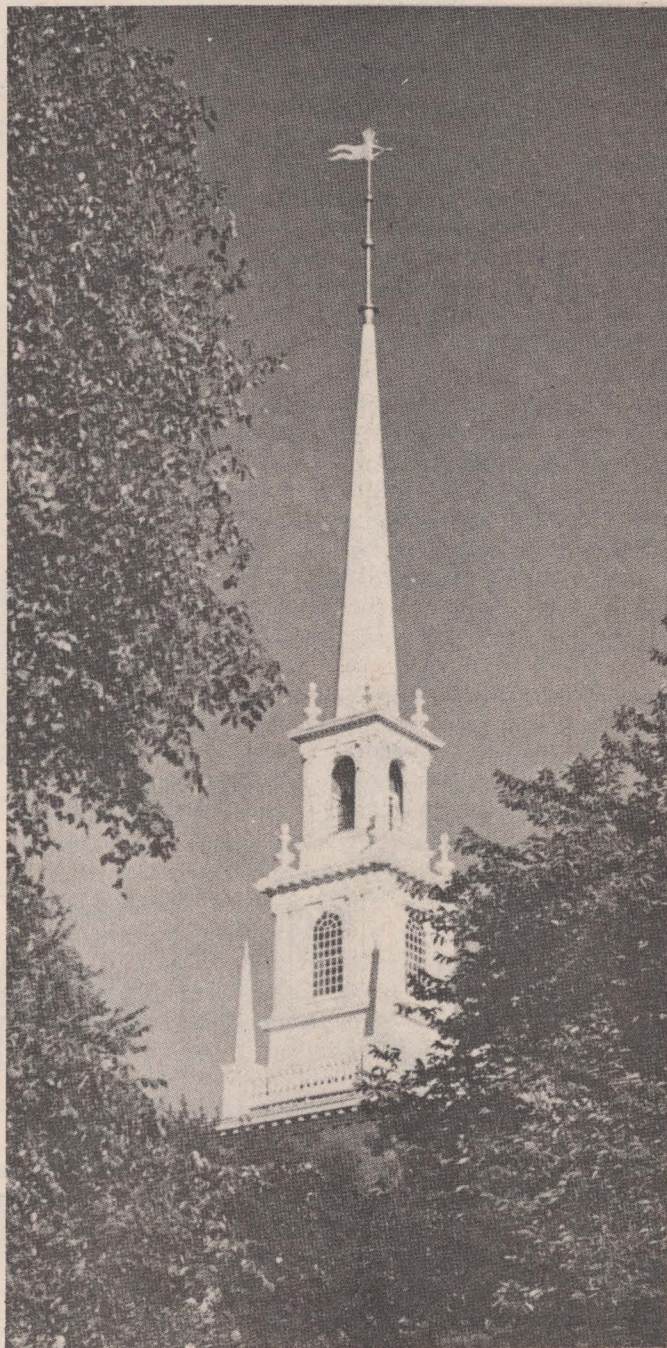
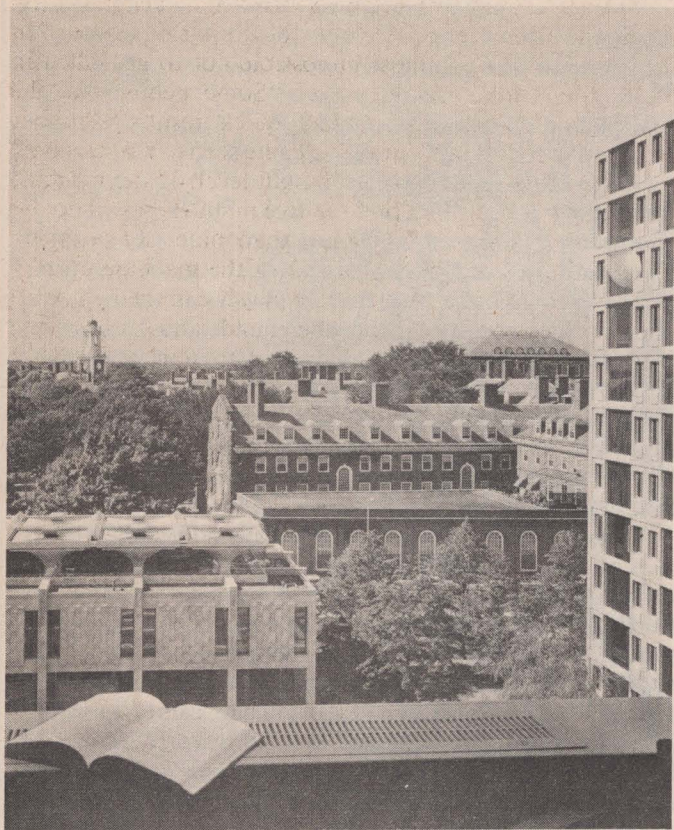
"Centipede isn't that bad either," states Julie. "Destroying mushrooms is not as bad as destroying people or ships," she adds, paraphrasing either Alexander Haig or Max Yasgur.

Rick's Tips: Mastering Any Video Game

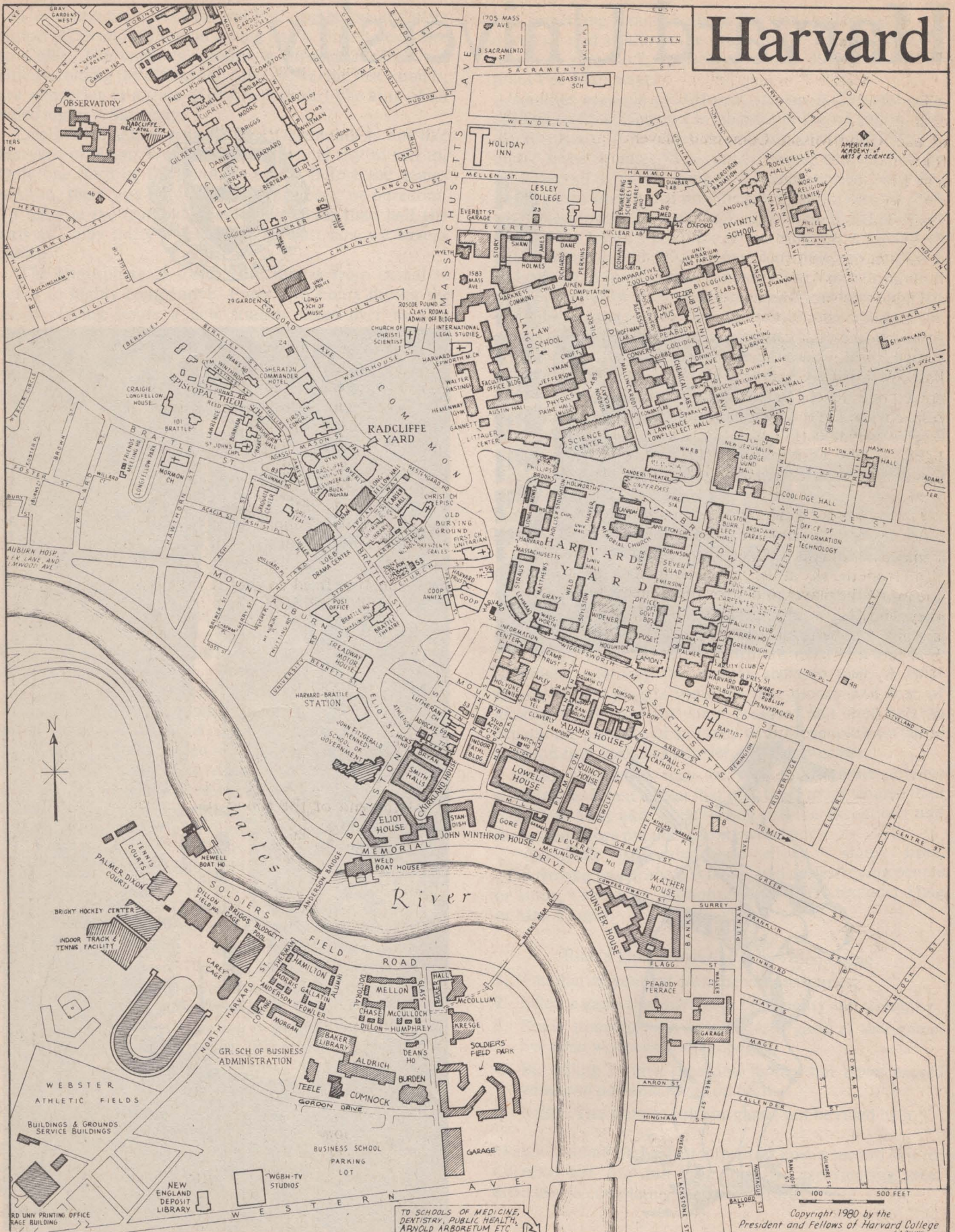
1. Familiarize yourself with the various games.
2. Select a game that suits your personality and strengths.
3. Study someone who is considered good at that game. See what works and what doesn't.
4. Be willing to give time and money but never exceed your own personal limits on each.
5. Relax. You want to rule the game; not be ruled by it.

*Some football players attempted to host a second Winter Carnival last July but gave up after experiencing great difficulty in completing the ice structures.

Harvard University



Harvard



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HARVARD

<i>Location:</i>	Cambridge, Massachusetts
<i>Nickname:</i>	The Crimson
<i>Colors:</i>	Crimson and White
<i>Enrollment:</i>	6,356
<i>Best Athletic Teams:</i>	Crew, Swimming and Squash
<i>President:</i>	Derek C. Bok
<i>Famous Alumni:</i>	Franklin D. Roosevelt and Jack Lemmon
<i>School Song:</i>	Ten Thousand Men of Harvard



Harvard is the oldest college in the country, founded in 1636 and named after John Harvard, a Puritan minister who enrolled in Harvard's first class, died that fall and left his books and half his estate to the college.

Thousands of Harvard men have died since and left considerably more than books and half a meager estate. Yet none of them have had the college named after them. Buildings and graduate schools and rowing shells and other items perhaps. But not the college itself. Thus John Harvard learned that lesson that the college itself puts forth with great regularity: first is best.

Harvard, as anyone who goes there will tell you, invented video games. Local legend has it that back in 1962, a Harvard physics major doing graduate work at nearby MIT found himself so bored on weekends that he contemplated throwing himself off the Smoots Bridge. (Although both universities are in Cambridge, the social life at MIT, such as it is, is a far cry from what this Harvard man was accustomed to at his alma mater.) When the dorm's ping-pong table was ruined by a student doing some outside research (he spilled acid on it), it was almost the last straw. Then, in a flash of insight, the Harvard man hooked up the university computer to his television set and, lo, Pong was born.

So it is not surprising that when video games made it big on the covers of Time and Newsweek in January of 1982, a Harvard undergrad already had a best seller called simply, "How To Win At Video Games". The author recently took a "leave of absence" to "study" in Rome, supported, no doubt, by his earnings. For all its Eastern Establishment-blue blood-men's club image, Harvard is still one of the great breeding grounds for Horatio Alger capitalists.

There is a wide variety of places to play video in or around Harvard. Most residential Houses have a couple of games in their recreation rooms; both Quincy House near Harvard Square and Currier House at the Radcliffe Quad have several. Many Harvard students get their first video "fix" on a House machine. For some, video games become an unbreakable addiction.

Freshmen have a better place to get a video high. The game room at the Freshman Union is a large, irregularly shaped room with about 20 video games lining the walls. There is plenty of room to watch games and people. The Union has the usual assortment of games, mostly old favorites like Asteroids, Centipede and Pac-Man. Union players are good but hardcores are rare. High score on Centipede was a respectable 383,000; on Pac-Man it was 189,000. The Pac-Man machine, a modified "slow"

version, is the most popular and, as elsewhere, is played by women at least as often as men. Pac-Man's popularity with women as well as men has been a major factor in its fast rise to the top of the video game popularity list.

Hardcore players can go to two game rooms near Harvard Square, Elsie's Sandwich Shop and America's Game (formerly 1001 Plays). Elsie's saw the video game light two years ago and converted one of its three rooms into an arcade. Devoted exclusively to video, Elsie's game room contains 14 games jammed wall to wall in a twenty by twenty-five foot cubicle. If you need a break from shooting aliens or if your Pac-Man blister is starting to act up, you can walk through a door and feast on one of Elsie's famous sandwiches which take two hands to control and invariably leave you walking around Cambridge with a drop of mayonnaise or mustard impressively resting on your chin.

Elsie's hangs on to old favorites like Galaxians and Defenders although after a three-year tenure, Space Invaders was recently replaced by Omega Race. As one of the two bigger amusement halls in Cambridge, Elsie's also gets the new games. Stargate made its Cambridge debut in January of 1982, just in time for final exams at Harvard.

The Elsie's crowd is very collegiate. At any one time, half the clientele sport alligators and back packs. At night, Harvard students dominate the crowd to an even greater degree.

The high scores at Elsie's reflect a more determined set of players than at the Union: top score on Defender was 852,000; on Centipede, 398,000; and on Pac-Man, 175,000. The Pac-Man machine seemed particularly difficult. It was a "fast" version which normally wouldn't be that much harder than a "slow" one except that the control stick was so loose it was impossible to be confident of a predictable response.

America's Game is the best of the local arcades. Located about a quarter mile up Massachusetts Avenue from Harvard Square and two doors down from the Orson Welles Cinema, it has three levels and about 50 video games of all types as well as a shrinking number of pinball games.

The machines at America's Game change constantly. Pac-Man has already been replaced by a deluxe version and there is also Ms. Pac-Man. Stargate now sits where Defender once did, Red Baron joined Battlezone to give America's Game two three-dimensional games, and Space Duel now complements Asteroids Deluxe.

Centipede topped out at 620,000, Stargate at 415,000 (Elsie's Stargate was only 260,000), and Asteroids Deluxe,

perhaps the most difficult game on the market, had a respectable high of 125,000. Even the Ms. Pac-Man, a relative newcomer for whom no patterns had yet been devised, had a respectable high of 102,000.

Most Harvard types play the games at their residential Houses or at Elsie's or at the Union but some hardcores make the regular trek to America's Game. During the daytime, this arcade is definitely not very collegiate. One reason is that it is less convenient than Elsie's or the Houses but there is another factor as well. During the day, America's Game is sort of a tough place. Not *really* tough, mind you, but it is tough enough to make the average Exeter grad wish his alligator would crawl unobtrusively into his pocket.

"It's not so much that the patrons are dangerous or anything," says Brad, a Harvard junior and an America's Game regular. "It's just that it's difficult to get on a popular game like Battlezone if you're wearing a Lacoste shirt. The locals won't take you seriously unless you look serious."

At America's Game, that apparently means short hair and Army jackets. But for the hearty Harvardian who seeks variety, America's Game is still the place to go.

Surprisingly, America's Game puts on a different face at night. After 8:00 p.m., the lambswool sweater replaces the Army jacket. The place becomes filled with Cambridge couples out on a date and this includes many Harvardians. Most are killing time before or after a subtitled foreign film next door at the Orson Welles Cinema. This is basically the same after dinner crowd that keeps the House video machines filled with quarters.

The rise of video games has definitely shaken Harvard's social traditions, particularly the advent of Pac-Man fever. It has become an epidemic in Cambridge or, quite possibly, an addiction.

"I used to do a lot of drugs," confesses John, a better than average player from Mather House. "I don't anymore though. I find that nothing compares with the feeling of eating that last dot."

John's friend Will experienced a different social change. "I've never done drugs," says Will. "But I know one thing. I haven't had a date since I started playing Pac-Man."

Will's case seems to contradict existing evidence or perhaps Will just needs to practice. Pac-Man seems to bring men and women together and someone particularly adept at the game can often relay high scores in the game room to high scores elsewhere. As one Kirkland House senior said, "You used to need a sports car or a hideaway on Martha's Vineyard to impress some of the women around here. Now all you need is a Pac-Man score over 200,000 and you're home free."

To get an even closer look at the Harvard video scene, an undergraduate named Chauncey volunteered to seek out the best game player on the Cambridge video circuit. His report:

I began my journey at Harvard's Freshman Union when I asked an attractive freshman lass for a game of Pac-Man. "Sure," she said without even looking at me.

I had reached 25,000 on my first man, admittedly a

case of playing over my head, when I felt a sharp pinch on my *derriere*. The freshman was suddenly showing interest. "You come here often?" she leered originally. I started to answer, a fatal mistake. With my concentration momentarily broken, my Pac-Man was trapped by Blinky, Pinky and Pokey and died a non-violent death.

When the young lady took over the controls, her interest seemed to have already cooled. Or maybe, I told myself, she was simply concentrating on the game. Desperate for small talk, I remembered why I was there and asked her who owned the high score. She immediately ran her Pac-Man right into Pinky for no apparent reason. Turning to me excitedly, her game forgotten, she gushed, "He's a senior in Mather House."

Her eyes were glazed. The silence grew embarrassingly long as she stared at a spot somewhere over my head. Then, she suddenly came to her senses, blushed and excused herself from my presence.

Next, I headed over to Elsie's and worked out on their Pac-Man game, the one with the loose joy stick. I asked Judy, an Eliot House sophomore, how anyone could score 175,000 on such a machine. "He's a senior in Mather House," she said as her eyes assumed that distant look he had just become familiar with.

I completed my game and asked Judy if she cared to go for a beer or two. She looked at my score of 48,000. "Sorry, I must be going," she said sincerely, just as they taught her in etiquette classes at Miss Porter's School.

I was tempted to check out America's Game for this Pac-Man wizard but on a hunch I tried Mather House. Mather's Pac-Man game is one of the "slow" versions and when I arrived, I found fifteen to twenty people gathered around the machine. I shouldered my way through chinos and sweaters until I could see who was playing. One look at the scores and I could see that this had to be the preliminary bout: the game was over before either had reached the fourth screen.

A huge, red-bearded fellow took two quarters from their on-deck position in front of the Pac-Man sign and fed them into the machine. Big Dave, as he was called, seemed to have a considerable following in the crowd as evidenced by the cheering that accompanied his every move. The sweat began to form above his moustache as Dave averaged 10,000 a screen for the first four screens. More words of encouragement came from the spectators, many of whom had to be filled in on Dave's progress by the few near enough to actually see what was going on.

Dave finally was caught by Blinky after reaching a very respectable 70,000 on his first man. Big Dave is a chem major currently working on crystalline structures. He expects his findings to be published sometime next year.

"I get very depressed when I can't munch clean," he told me as his opponent, a shortish blond guy named Peter, stepped up to the machine. We had a lot of time to talk because by the time Peter had lost his

first man, he was into the keys and over 130,000. "Peter is the only person I know that can be on his last man and still play so long that people will pick up their quarters and walk away," said Big Dave before starting his second turn. It was at this point that I noticed that cute freshman enter the room, she of the glassy eyes, and I knew I had found the Pac-Man Wizard.

Local legend has it that Peter once broke half a million when a Yalie showed up and challenged him. Tonight he managed "only" 290,000, or double Big Dave's effort. Using a pattern completely unlike the universal one found in all the "How To" books, he managed by a combination of skill and daring to average over 12,000 points a screen until he hit the keys, at which point his average went up. At least it did until he got so high that the little ghosts stopped changing colors when he ate an energizer. As late as the ninth screen, he "munched clean"; i.e., ate all the ghosts to score the maximum possible points.

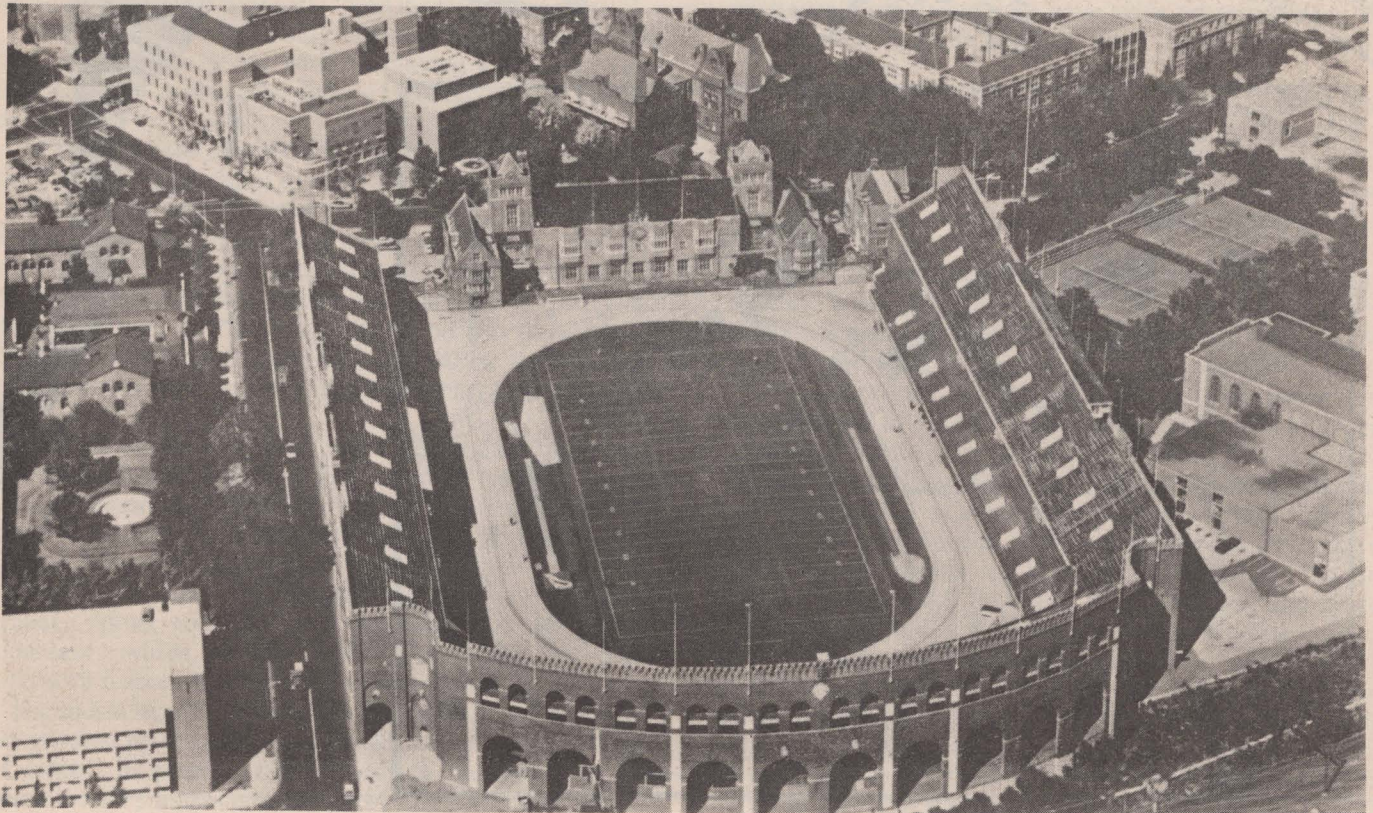
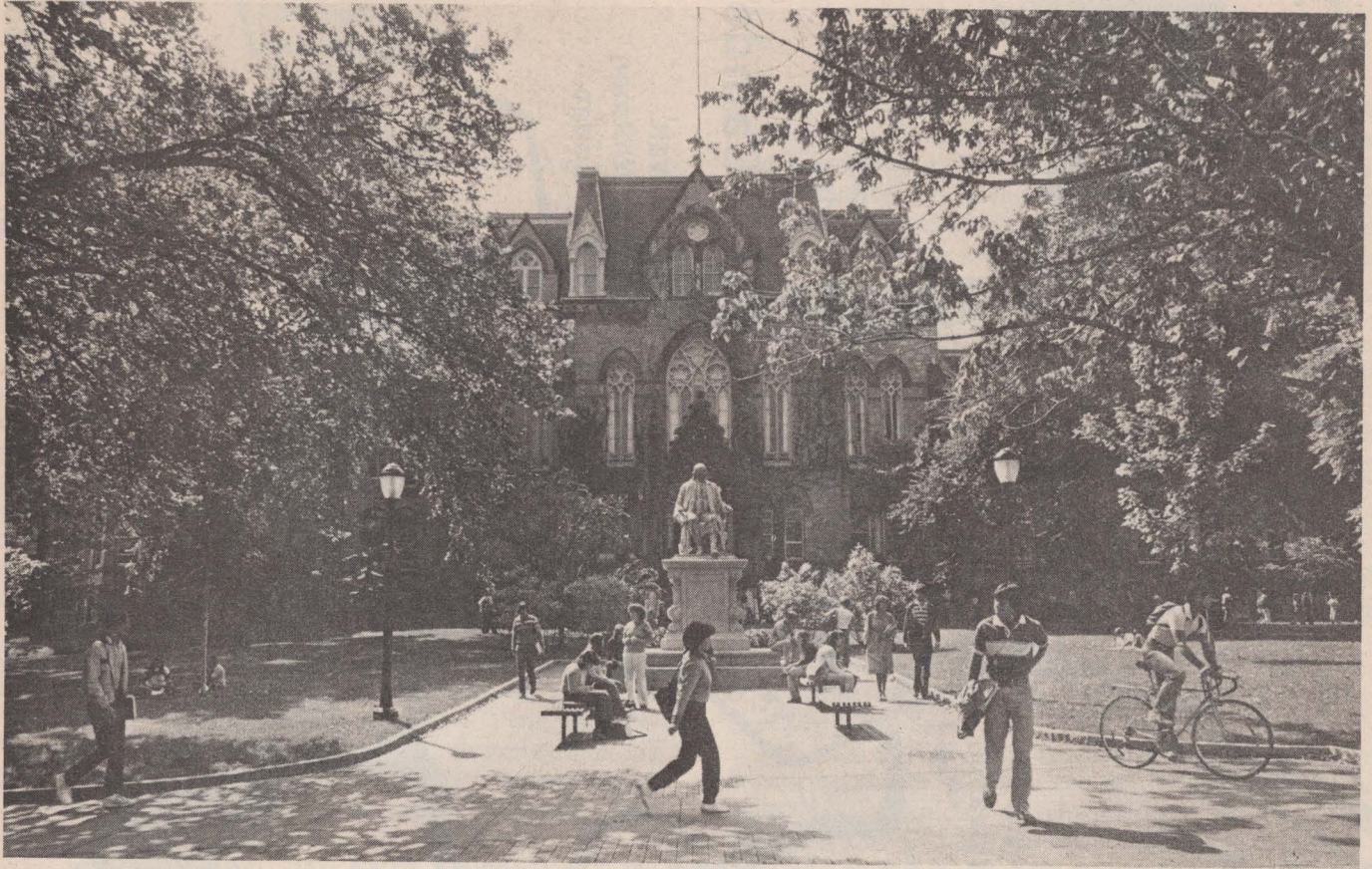
At the end of the game there was loud cheering for Peter's performance. The freshman made her way over to him and introduced herself. Just as quickly, she and the Pac-Man Wizard strolled arm in arm out of the room. I went for a beer with Big Dave.

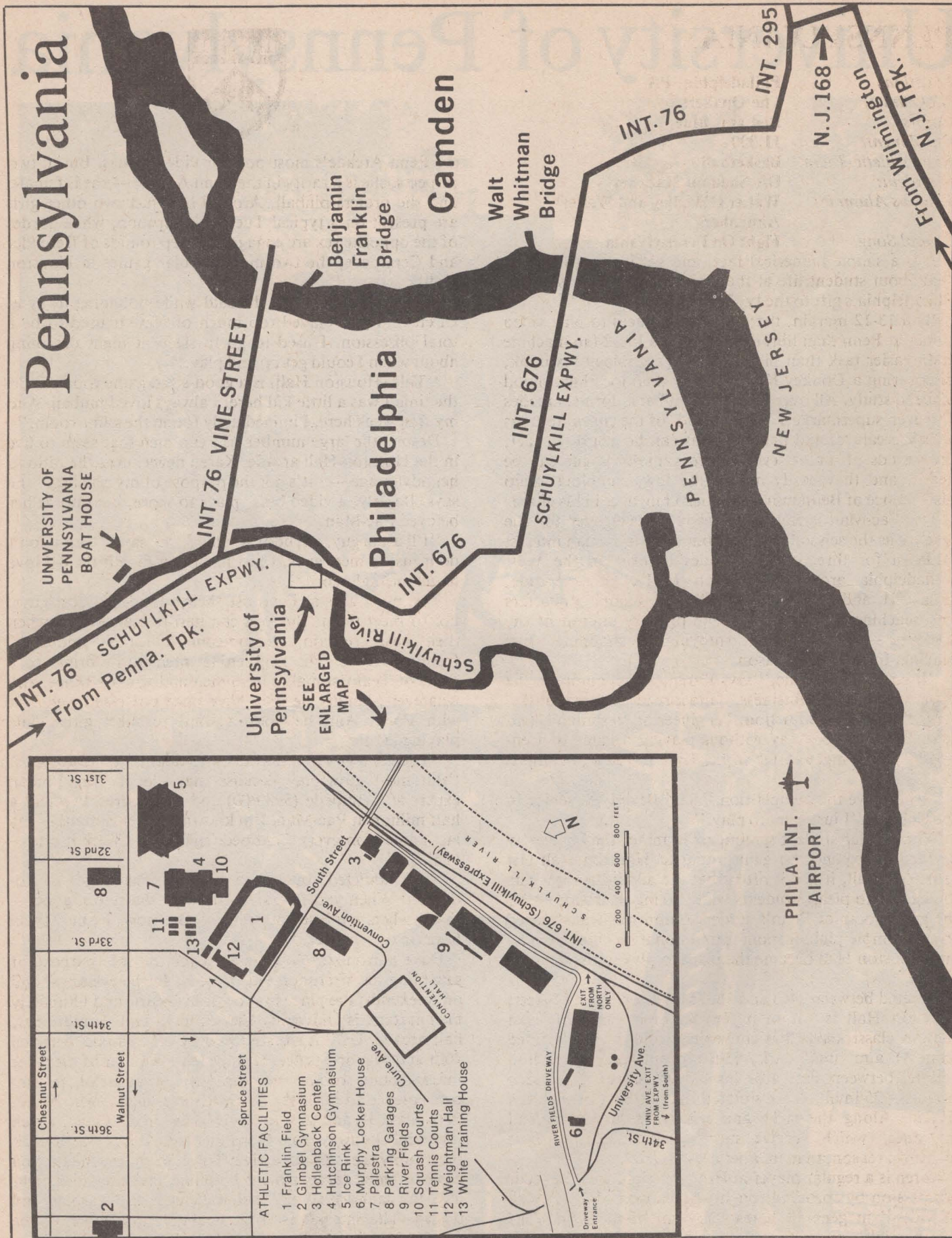
Peter's Tips: Scoring At Pac-Man

1. Never play in the morning.
2. Never play sober.
3. Be aggressive but don't overdo it. It is not cool to kill yourself going for that last munch.
4. Learn to anticipate where the ghosts will go. They will always reverse direction when you eat an energy dot.
5. Talk to your opponent. Ask her why she likes Pac-Man. If she says she has an oral fixation, ask for her phone number.
6. Never play alone.
7. Never play me.

University of Pennsylvania

University of Pennsylvania





PENNSYLVANIA

<i>Location:</i>	Philadelphia, PA
<i>Nickname:</i>	The Quakers
<i>Colors:</i>	Red and Blue
<i>Enrollment:</i>	11,000
<i>Best Athletic Team:</i>	Basketball
<i>President:</i>	Dr. Sheldon Hackney
<i>Famous Alumni:</i>	Walter O'Malley and Walter Annenberg
<i>School Song:</i>	Fight On Pennsylvania

It is a simple numerical fact, and yet it reveals a great deal about student life at the University of Pennsylvania, Philadelphia's gift to the Ivy League.

By a 13-12 margin, there are more places to play video games at Penn than libraries. Finding a Pac-Man machine is an easier task than picking up a psychology textbook, discovering a Donkey Kong simpler than locating a good place to study. All over campus — in bars, dorms, arcades and even supermarkets — the sounds of the consumptuous yellow creatures and nasty gorillas can be heard. In fact, the sounds of almost every video game in vogue can be heard, and they easily muffle the low, rumbling audio disturbance of Benjamin Franklin rolling over in his grave.

The Pac-Man is not quite ready to take over for the Quaker as the school's mascot, but there is enough interest at Penn for three major arcades to exist in the West Philadelphia area. In Houston Hall's Penn Arcade, Galaxy II, and University City Pinball, pumping quarters into machines for pleasure is the primary interest of the students — not drinking, studying or shopping. Just playing, for whatever reason.

"It's relaxing for me," says Karen, a sophomore in the Wharton School of Business, "and it relieves boredom."

"To me, it's an addiction," engineering freshman David said. "I can't go a day without playing a game of Centipede. Every night, after work, I hit Zayda's (a campus deli)."

"I just love the competition," said Beverly, a senior in the College. "I just want to play."

With similar student sentiments in mind, the University decided to expand the game room at Houston Hall last year. After all, it is not often that the administration gets the chance to please students while taking their money. So the game room at Penn's student union was transformed from a simple pinball room into a bonafide video arcade, and Houston Hall became the place to play in the daytime hours.

Located between 34th and 36th Streets on Spruce Street, Houston Hall is within a few hundred yards of most campus classrooms. It is convenient, and is usually filled from 11 a.m. until dark, with students playing at lunchtime, between classes or instead of classes. The video games — 25 in all — are situated in the center of the dark arcade. Along the right and left walls are 29 pinball machines, which receive more play here, for some unknown reason, than in other area arcades.

Karen is a regular player at Houston Hall, and she feeds her passion by spending roughly \$10 a week. She is "sick of video" in general, hates Pac-Man because "it's too commercial", and scorns Tempest and Defender, two of



the Penn Arcade's most popular video games. But in two respects, she is a rarity in the Penn Arcade — she is female, and she prefers pinball. Around her, just two other girls are present on a typical Tuesday afternoon, while hordes of the opposite sex are engaged in deep rounds of Defender and Centipede, the two most popular games in Houston Hall.

"I'm sick of video," she said while pounding away at Circus. "I just played too much of 'em. It used to be a total obsession. I used to go to sleep at night dreaming about when I could get up and play."

"This (Houston Hall) is a good-sized game room. From the time I was a little kid here, I always loved pinball. And my first week here, I immediately found the game room."

Despite the large number of Penn men that seem to live in the Houston Hall arcade, Karen never turns the ratio to her advantage — "it's not the purpose of my playing," she says. Beverly, a video buff, plays to score, but only at her beloved Pac-Man.

"I'll ask a guy, anybody to play," she says. "But I don't do it just to meet guys. I just like the competition — I love to get the high score."

Yes, most girls at Penn use their quarters to beat guys, not to meet them. But you can hardly blame them when their basic selection is someone like the "addicted" freshman Dave. The frightening intensity he brings to a game of Tempest makes both men and women wince, and whatever humility he may have once possessed went out with Pong. And he doesn't want to meet girls while playing, either.

"There's a guy at Asteroids who does that," Dave says. "But most guys play because they like it. Me, I'm an expert at Centipede (598,000) and I've scored two and a half million at Pac-Man. I'm known all over campus — my last name's on every Centipede machine. Check it out — H-E-S."

"I'm addicted, but there are different stages of addiction. When you first start playing, you're not good — that's when you lose your money. But now, I can play an hour on one quarter."

Dave patronizes Houston Hall for the sole purpose of satisfying his afternoon video needs. In the evenings, and on weekends, the place that owns his heart, and ultimately his quarters, is University City Pinball. Half-laundromat, half arcade, UCP is situated slightly off campus, between 40th and 41st on Spruce. It is the least popular of the three major game rooms on campus, because of its inconvenience to both the High Rise residents, who prefer the Galaxy II, and to students who live in the Quad, which is two blocks away from Houston Hall. And of the three, it is certainly the least attractive. To get to the machines, you have to enter an apartment building, make a quick right into the laundry room, and walk past the washers and dryers. The interior isn't particularly impressive — the lighting is ordinary, the decor West Philly circa 1982.

But for the hardcore enthusiasts like Dave, UCP is nirvana. There are 35 video games in all, including multiple versions of Pac-Man, Defender, Battlezone and Ms. Pac-Man. There are stools for the player's pleasure, and specials offered weekly on one of the arcade's nine pinball machines. And there is even a "High Score Shoot Out" held every Wednesday night — the winner receives a University City Pinball t-shirt and five free games.

"We call it 'P.R.' — public relations," said June, a changemaker at University City Pinball. "We do it to please the people. A lot of arcades don't have the stools, in others you can't bring food in. We do it to please the people. I go to a lot of places, but I like this one better than any other, even the big ones in Center City — it's relaxed."

It's so relaxing in University City Pinball that June and his buddies that run the place don't mind keeping it open 24 hours on Thursday, Friday and Saturday nights. And for people like Dave, that feature is just too appealing to resist.

"There's this guy Joe Sea," he said. "He's a master — he's a pianist and he's got good coordination. Usually we'll meet at University City Pinball at about midnight on a Friday or Saturday and just play all night, on a couple of dollars. You can bring beer in, it's real relaxed."

The casual, laidback atmosphere of UCP is the chief reason, according to Dave, why many of the more devoted players take their acts to the "laundracade" and not the Galaxy II, which is without question the best stocked arcade in the campus area. At the Galaxy, there are more video games (48), more pinball machines (21) and better lighting than in either Houston Hall or University City Pinball. The Walnut Street game room is unique in one other respect, as well — it is the only arcade in West Philadelphia with a full-time security guard watching over its finely-tuned machines. And that is where the fun ends for many players.

"That place blows," Dave says. "They throw you out for anything — you can't lean on the machines, you can't bring in food."

Marcus is a senior at Penn who plays purely for enjoyment, and he won't go near the Galaxy.

"I don't play except as a study break, when I want to blow off steam," he says. "But they have those security guards up there, and if you look at a machine the wrong way, they jump on you."

There is a method, however, to the madness of the changemakers and security guards that run the most complete game room at Penn. Unlike Houston Hall's arcade, which is provided by the University administration mainly as a service for students, the Galaxy is a business. And it's a business in itself, without a laundromat to supplement its intake of quarters.

The Galaxy is constantly updating and repairing its machines, and the security guard is there to make sure that

nothing happens to the expensive investments. According to one of the changemakers, who refused to give his name, it's that simple (He wouldn't give the name of the owner of the place, either, because "he's a very busy man").

"We have a place at St. Joe's," he said, "and before, the kids would do all sorts of things to the machines, vandalizing them just to get the money. We'll give them a warning first (if someone hits a machine), and then we'll throw them out. We keep the machines in good condition — we have a mechanic that comes in every day."

Ejected players rarely argue after being ordered to leave, because both the security guards and changemakers treat offenders like people who have already thrown the first punch at them.

Nevertheless, the Galaxy probably makes the most money of the three, drawing its patrons on nearly an equal basis from the surrounding neighborhood and the surrounding University. On Friday and Saturday nights, the arcade is running at peak efficiency, and there are lines around the most popular machines — Pac-Man, Defender, Donkey Kong and Centipede. And with the stereo playing at those times, it is not such a bad place to be, as long as you refrain from pounding on the games after bad breaks.

Despite the fact that the Galaxy is only one long city block away from University City Pinball, the workers in both feel that the competition between the two is minimal. The unnamed Galaxy changemaker claims he's never seen the inside of UCP, and June feels that the only difference between the two is the way in which each deals with the general public.

"We're a little bit freer with our people," he says, "but we don't really feel there's a competition. We just try to make everyone happy. As far as basic competition in number of machines is concerned, we wouldn't have a chance. But in dealing with people, well...."

"That's why it's so much better," Dave says. "For me, it (playing) is not relaxing, believe me. I get so frustrated."

But only when he's in the process of mastering a game. To Dave, one of the joys of life at the University of Pennsylvania is to be able to walk into the WaWa supermarket at 39th and Walnut, dump a quarter into Missile Command, and play for hours.

Another is to go drinking at Doc Watson's (39th and Sansom), where he can rest his mug on top of a Pac-Man machine, and maneuver the joystick with one hand while eating pizza with the other.

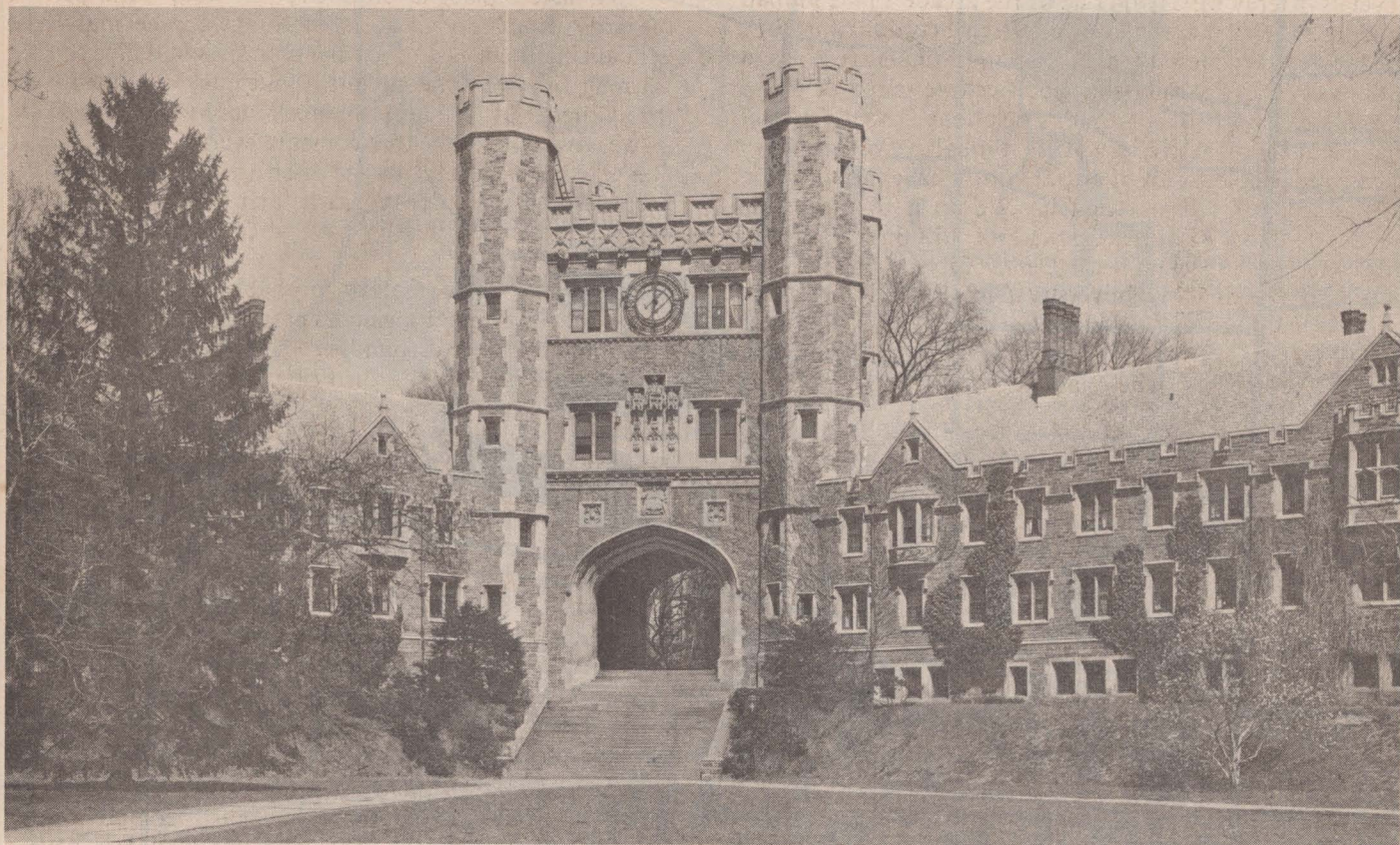
And he is very much enchanted with the idea of banging away at Space Invaders just before bedtime in the Quad.

For Dave, there are no limits in the pursuit of his video education at Penn.

"It's great," he said. "In Philadelphia, they're everywhere. There are little machines all over the place."

"Little machines all over the place...."

Princeton University



PRINCETON

<i>Location:</i>	Princeton, NJ
<i>Nickname:</i>	The Tigers
<i>Colors:</i>	Orange and Black
<i>Enrollment:</i>	6,000
<i>Best Athletic Team:</i>	Basketball
<i>President:</i>	Dr. William G. Bowen
<i>Famous Alumni:</i>	F. Scott Fitzgerald and Jimmy Stewart
<i>School Song:</i>	Old Nassau



At Princeton the video-game action takes place mainly in the game room of The Pub, in the Chancellor Green building. There are ten games, Asteroids, Beserk, Defender, Galaxian, Missile Command, Pac-Man, Qix, Red Alert, Star Castle, and Zaxxon. Upstairs is a large room where beer is served to those old enough to buy it (the drinking age in New Jersey is 19), with a reflecting ball spinning and casting points of light hither and yon. Downstairs a cement-floored room is bathed in yellow fluorescent light, and ping-pong tables stand idle in the glare. One wall, however, is buzzing with activity — eight video games line it, and Princetonians form lines to use them.

Video games came to The Pub, and to Princeton, in the late fall of 1979, when one Space Invaders machine was moved in. Alpha-Omega Amusements of Edison, N.J. owns and operates the video games on the Princeton campus. They took over in late fall 1979 with just the Space Invaders, and now make plenty of money, because the games are very popular. During the winter of 1979-80 three more game came to The Pub: Super Breakout, Galaxian and Asteroids. Things have been taking off ever since.

Dave, a junior psychology major from Westchester County, N.Y., knows all there is to know about the video scene on the Princeton campus. He has broken 1,000,000 points in Asteroids in a little over three hours at the controls. Recently he played his first game of Asteroids in a year. "I'm still good," he says. "The game is predictable."

The game that is not predictable, says Dave, is Defender, which is now the most popular game at Princeton, along with Pac-Man. "It's not as static. Things on the screen move unlike in Asteroids or Space Invaders. You can do things faster and you have to plan ahead more. It's impossible to just wait for one big money and rack up points." He says that Defender is the "state of the art" in video games, the game that connoisseurs are most interested in. "For the person who has followed video games from Space Invaders through Asteroids and all their spinoffs, Defender is the most challenging."

Defender and Qix are the only machines in The Pub which have permanent memories. That is, all other machines are reset daily, and high scores are daily high scores. Dave owns the high score on Defender, 999,000 out of a possible 999,975. But he has scored over 2,000,000 in two and a half hours. "And I was mad because the game room was closing and I had to stop." Dave also likes Defender for another reason: "When you get the high score of the day it plays a few bars of Bach's Toccata and

Fuge in D Minor."

There is no discernable pattern, Dave says, in exactly who at Princeton plays video games. "It does not depend on what your major is, or where you are from. Just about everybody plays once in a while." There is one pattern he does see, regarding who plays what games. "About one woman plays to every ten men, and the women mostly play Pac-Man." Pac-Man has about 50 people a day playing, as does Defender. Star Castle, at the other end, is the least popular, with about 10 players per day. Quarters are required for all games, not tokens. Dave sees a reason for the universal appeal of Pac-Man. "It only takes one hand. In all other games, coordination of two hands is required, but Pac-Man can be mastered more easily."

He cites escape as the main reason for the popularity of video games in general. "You see people in here saying, 'I have an exam in a half-hour. I've just gotta play a few games.' That's typical. People play to escape things they have to do, or things they don't want to do."

The Student Pinball Agency oversees all of the video games on the Princeton campus, which until recently totaled 16. There were four machines at Wilcox Hall of the Woodrow Wilson College, which were removed because of renovations and the construction of a new dining hall. Also, there were two at the Princeton Inn College. Now there is but one, Asteroids Deluxe, and a couple of foosball tables and pinball machines. The Pinball Agency makes a good piece of change on the video games (and pinball games). The two students who run the agency get 15 percent of the profits from the machines in The Pub. Dave estimates this to be about \$3,000. Alpha-Omega makes 50 percent of the profits, and the rest goes to Princeton University.

The attitude of the University's administration toward video games seems to be frowning but tolerant. Dave says that two video games had been placed in the foyer of The Pub/Student Center complex, "for handicapped students who could not get down the stairs to the game room." This was during the academic year of 1979-80. However, the machines were removed in the spring of that year, not surprisingly during the time of the annual class reunions, and were never replaced.

As for the town of Princeton, the attitude is clear. An ordinance was passed during the winter of 1981-82 to the effect that no establishment could have more than one machine per 500 square feet of floor space. There is a "grandfather clause" however, allowing any establishment to keep the amount of machines it already had.

Games can be found in three local establishments off-campus. The Athenian Restaurant, at 25 Witherspoon

Street, has Robotron 2084 and Zaxxon. The Athenian has about the best pizza in Princeton, but a limited video scene. Across the street is Mykonos of Princeton, at 22 Winterspoon. Games are jammed in this small emporium of pizza and Greek pastries. Dave theorizes that Mykonos makes as much from video games as it does from sales of food. Most of the quarter-pumpers are high school students or even younger video fans. The attitude of the proprietor toward his video clientele was clear when The Who's "The Kids Are All Right" came on the radio in the shop. "Ah," he beamed, "that's the song I requested them to play." Last among eateries with video on the side is Buxton's at 84 Nassau Street, Princeton's main drag. Buxton's serves ice cream and burgers and breakfast, and the video scene is low-key, with just two machines, neither of which is often played by Princeton students.

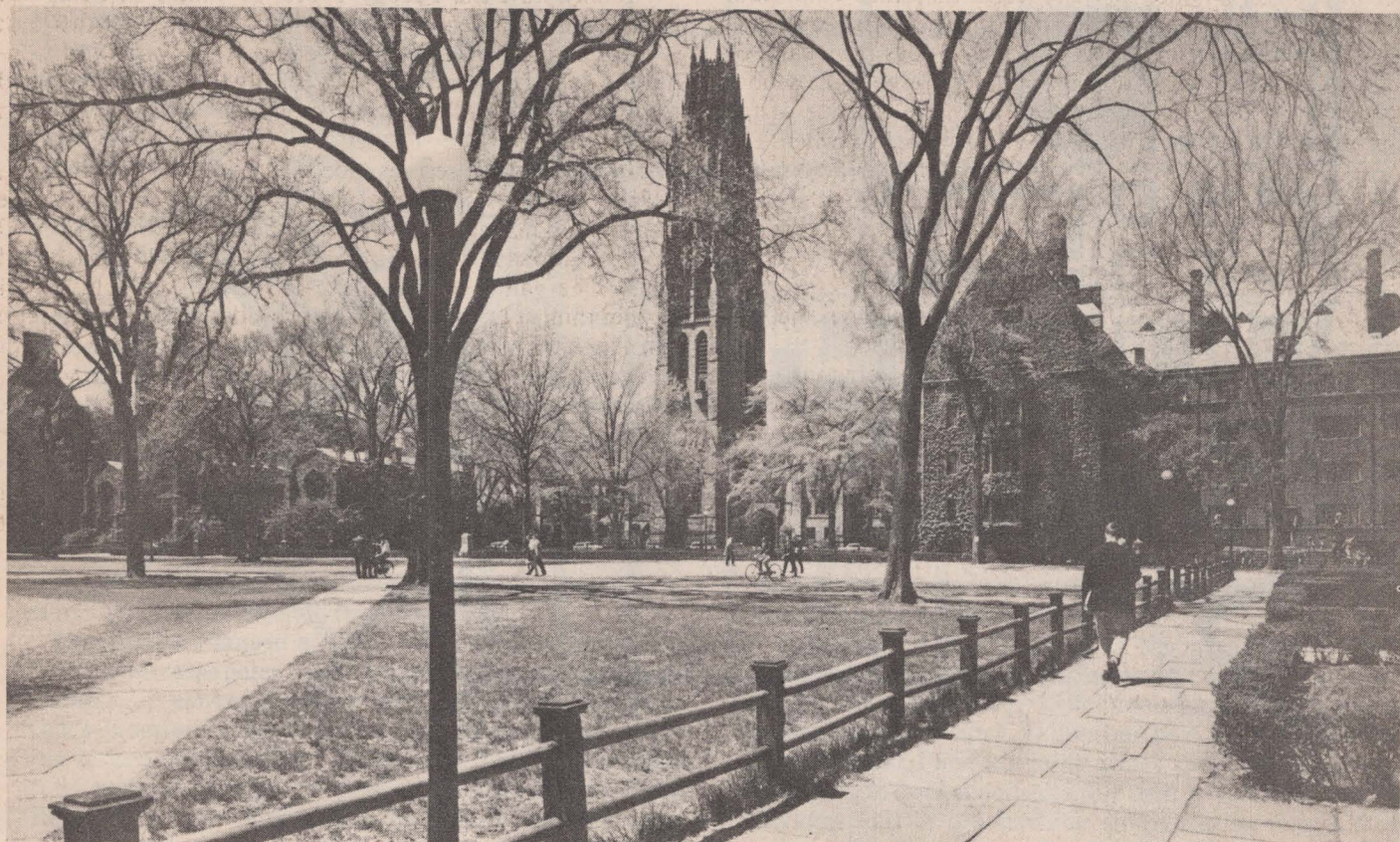
The ordinance limiting video games is obviously intended to prevent the coming of a video arcade, which to the citizens of this burg would be an anathema. The Preppies of the school are only outdone in Preppiness by the Preppies of the town itself. The fashionable shops of Nassau Street are for monied shoppers, and there is no desire to attract the kind of crowd that goes with a video

arcade. For that matter, there are no fast-food chains in Princeton — no McDonald's, no Burger King, no Pizza Hut.

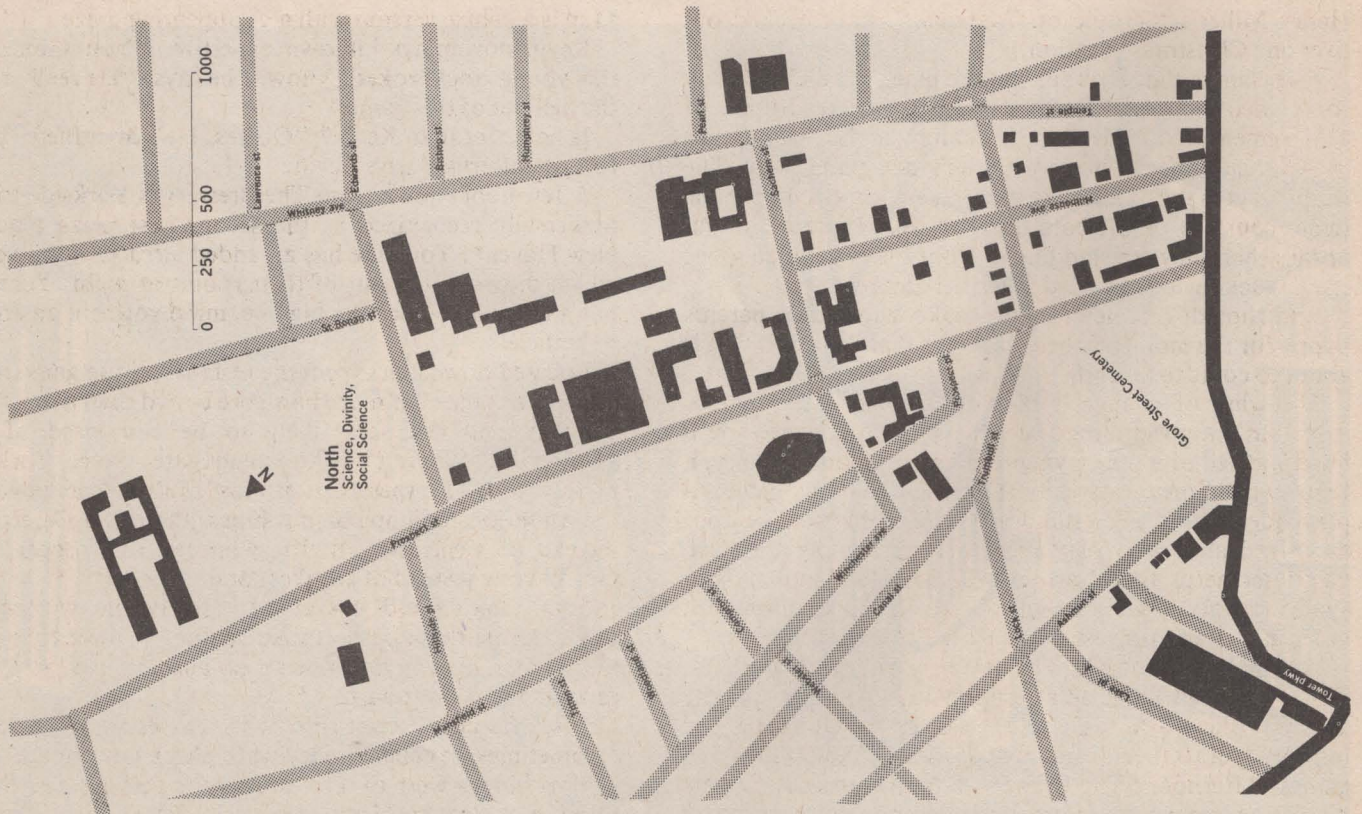
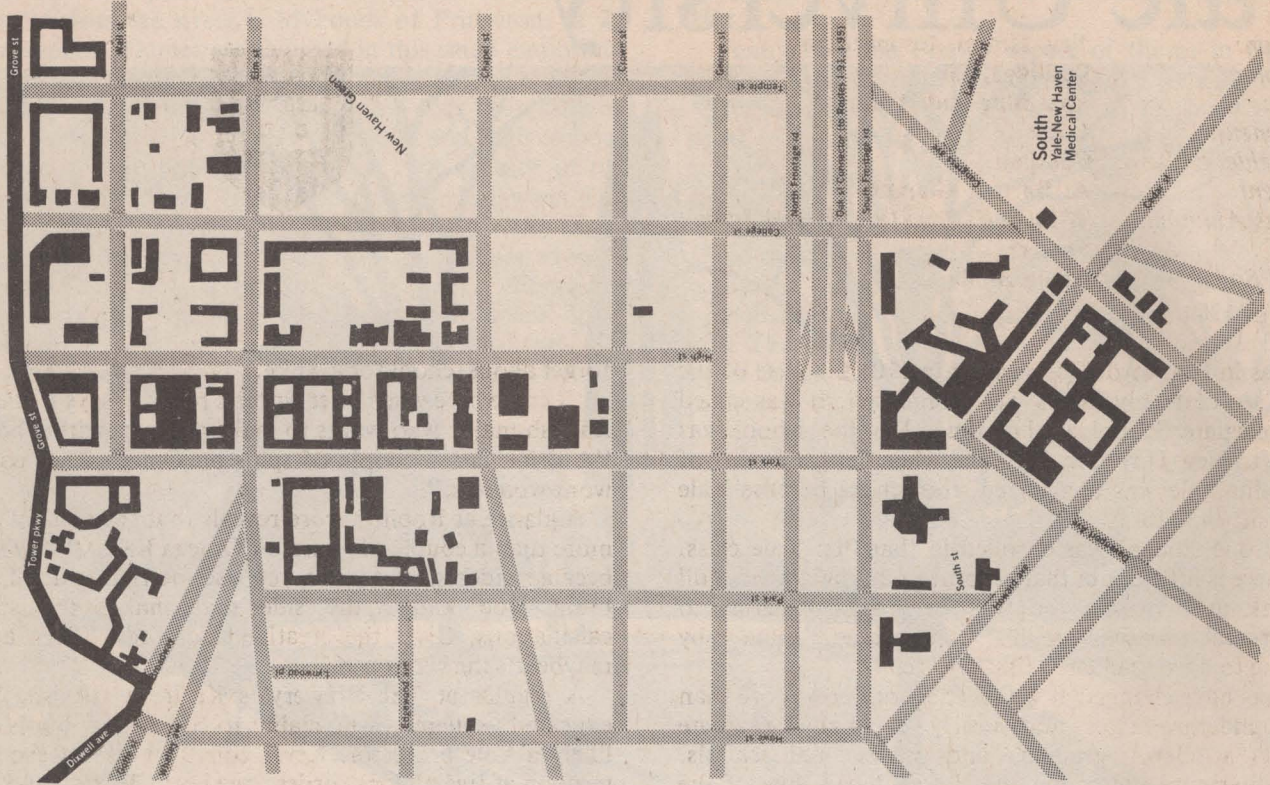
Funny how the Preppy aspect of things in Princeton relates to the video scene. Another of Dave's pet theories: "The people you rescue in Defender, the ones you transport to safety, are pink and green, the Preppy national colors. Maybe that has something to do with its popularity."

As regards the serious video-game player at Princeton, Dave does not see video playing as interfering with the course of normal life. "Of all the hard core video and pinball addicts I've seen in three years, nobody has flunked out. The games are just not played to the exclusion of other things. I probably play more video than anybody else in the school, and it has never gotten in the way of things I have to do." Even as the king of Princeton video games, Dave does not play every day, and figures he does not spend more than \$10 a week on it. Sometimes he just plays for 20 minutes, sometimes for a couple of hours. "But I do think about it when I'm not playing. And I even dreamt about it once. I was playing Asteroids and I just kept getting killed. It was awful."

Yale University



Map of Yale University Buildings



YALE

<i>Location:</i>	New Haven, Connecticut
<i>Nickname:</i>	Bulldogs, Eli
<i>Colors:</i>	Yale Blue and White
<i>Enrollment:</i>	5,100
<i>Best Athletic Team:</i>	Football
<i>President:</i>	A. Bartlett Giamatti
<i>Famous Alumni:</i>	William F. Buckley, Jr. and Jodie Foster*
<i>School Song:</i>	Boola Boola
*Class of 1984	

It was in Branford, Connecticut in 1701 that one of the nation's oldest universities was established. It was called the Collegiate School at that time. But the school was moved to New Haven in 1716 and when the generosity of one Elihu Yale was recognized, the school became Yale University in 1718.

Only one student was enrolled in that first Yale class. And there is little doubt that at some point, he dipped quill into ink and became the first person in America to misrepresent himself on his "Curriculum Vitae" by claiming to have graduated first in his class.

Things have changed at Yale. There are now more than 5,000 undergraduates and nearly as many graduate students at eleven graduate and professional schools. Yale's literature notes that the Yale Library, one of the four largest in the country, offers some 7,000,000 volumes to its students though few have actually read all of them. (Reportedly, one student who attempted this feat committed suicide when he discovered that every copy of Henry Miller's "Tropic of Capricorn" was checked out over one Christmas vacation.)

One change that is about to take place is Yale's affinity for video games. Despite its proud tradition of achievement and leadership, Yale may be the last campus in America to be swept up with the video game craze. The simple fact is that Yalies are more likely to be found at the tennis courts or on the polo fields or, in a few cases, at that library than they are standing in front of some video game that is sucking in their hard inherited quarters.

And though this news might make a few Yale parents happy for the moment, there are signs that this condition is about to come to an end.

The wind of change is blowing through New Haven. And that's a good thing. Because without change, you'll have one hell of a time trying to play these games ... if you know what I mean. Already there are five or six places to play video within a few hundred yards of the main campus and the Yalies who play there are not simply the drab computer nerds found around the Missile Commands at some schools. Yale's beautiful people have discovered video games and the rest of the Eli are sure to follow.

A popular hangout is The Brewery at One Broadway. This bar/restaurant is an afternoon and late-night favorite among Yalies, offering a wide selection of domestic and imported draft beers and a half dozen table-top video games. Afternoons The Brewery is frequented by students discussing macro or micro and sipping on beers; after 10:00 p.m. the place is full of Yalies who would rather

forget about school for a while.

"I come here when I get writer's block," says Robin, an English major who wants to make a living writing novels. "A drink and a couple of spins on Omega Race usually work wonders."

A glance at Robin's score reveals that she usually plays more than a couple of games of Omega Race. "Maybe it's because video games make you use the right side of your brain, you know, the side that makes the spatial calculations. Gives the creative side a rest. Then again, maybe it's the vermouth."

A regular at The Brewery is Kevin, a fiftyish, Yale-educated gentleman who claims to be a lawyer but is most likely a Yale professor. Kevin comes in almost every afternoon at five o'clock, orders one beer (Beck's), and seats himself at the Pac-Man table armed only with his bow tie and eight to twelve quarters. He then proceeds to beat the daylights out of the machine, often scoring over 120,000 points. This is no mean feat because The Brewery's Pac-Man is a deluxe version with a disappearing maze.

Kevin downplays his own expertise. "You should see this young stockbroker I know," he says. "He really racks the hell out of this game."

Is he better than Kevin? "Oh yes. He's an athlete. I just follow patterns," says Kevin.

A few doors down from The Brewery is Yorkside Pizza, universally recognized as the second-best pizza place in New Haven*. Yorkside has an added attraction, however, which draws Yalies out of their rooms at night. Yorkside has an arcade. Not a very big one, mind you, but an arcade nonetheless.

Located downstairs from the restaurant, the game room attracts a somewhat more hardcore crowd than that of The Brewery and one less likely to be composed of the fashionable "literati" who congregate there. Yorkside mainly draws Tempest fans as most of the other six games are imitations of popular machines: there is a Caterpillar instead of Centipede, Bullfrog instead of Frogger, and Gorillakong instead of Donkeykong.

Some don't mind this at all. "I have no will of my own," drones one bespectacled senior. "I have become a video game playing machine set on automatic pilot. I play anything that eats quarters."

A bystander confirms this assessment adding, "Sometimes we catch him trying to play a pay phone."

Two blocks west of The Brewery is the dur Fee Sweet Shop, a student run ice cream parlor which also serves as

*Sally's has the best pizza in New Haven.



Yale's third major video game haven. Although dur Fee's game room, located through a doorway next to the ice cream counter, is quite small, its games are proven favorites and one usually has to wait in line to play. The players are good but are typically less visible than the crowd at The Brewery and less hardcore than Yorkside's Tempest freaks.

There are two other arcades that are less collegiate than the above hangouts but do offer Yalies different games in different settings. Toad's Place is on the same block as The Brewery and Yorkside Pizza. This night club features small to medium name rock and blues bands and similarly sized drinks. If you still want to play video games after paying a three dollar cover charge, Toad's offers a half dozen games tucked away in a back room. There is a weekly Yale night with an admission of only one dollar with a Yale ID.

The Cafe des Artistes, a drugstore and coffee shop located about a quarter mile east of the main campus on Chapel and Howe Streets, possesses one of the few legitimate arcades in all of New Haven. With fourteen games, the Cafe des Artistes offers variety unmatched at any of the other game rooms but you won't find many Yalies here. Only the true hardcore video freak and an occasional grad student finds his or her way to the Cafe.

Kevin's Tips: How To Win At Deluxe Pac-Man

1. Get a well-paying job so you'll have lots of quarters
2. Go out and buy a "How To Win" book
3. Learn the patterns
4. Play conservatively
5. If all else fails, hire my stockbroker to play for you

The Games

THE GAME

The big-money game of 1981-82 was, of course, the popular Pac-Man. More man-hours have been spent playing, more quarters have been dropped into, and more words have been written about Pac-Man than any other game. This won't stop us from writing more.

Pac-Man's popularity can partially be explained by its simplicity. You control a big yellow dot (the Pac-Man) by means of a single joystick. The object is to run around a maze eating all the smaller dots in it. At the same time, you must avoid the four ghosts which will try to eat the Pac-Man. Each has a name and a nickname which we won't go into here, as the names vary with the type of machine. But the colors of the ghosts are the same on all variants: there is an orange one, a blue one, a red one, and a pink one. The characteristics of the ghosts are similar in all Pac-Man variants (so far) except Ms. Pac. Man. Basically these go as follows. The orange ghost is unpredictable but will not chase Pac-Man unless he is accompanied by another ghost. His "home area" is the lower left side of the maze. The orange ghost is the slowest of the three. The orange ghost will turn away from Pac-Man whenever it has a chance, but it will not reverse direction to avoid him. The blue ghost is almost as cowardly as the orange ghost, but not quite. It will attack the Pac-Man if there are other ghosts nearby. The blue ghost moves slightly faster than the orange ghost and can sometimes over-take Pac-Man if the Pac-Man is eating dots. (Eating dots slows down Pac-Man an almost imperceptible, but important, amount.) The blue ghost makes his home area the lower right side of the maze.

The red ghost is the most aggressive. His home area is the upper right, but he is the first to leave it to track the Pac-Man. The red ghost is as fast as the blue ghost. The pink ghost is also aggressive, and is the fastest of all. He will often pass right through the other ghosts when chasing the Pac-Man, and will come out of his home area, the upper left part of the maze, to hunt him. When a ghost touches Pac-Man, he dies.

The ghosts live in a box in the center of the maze. They come out one by one at the beginning of each board, first the red ghost, then pink, then orange, and finally blue. Each initially heads for his home area. You can not enter the ghosts' box.

THE ORIGINAL GAME

The original game has a fairly simple maze with two tunnels in the middle of the screen. The Pac-Man can run out the tunnel and will exit the screen, to enter in the tunnel on the other side. Make sure there are no ghosts in the tunnel before doing this, or you will be trapped. (See Figure 1) The tunnel is a useful escape chute, because ghosts slow down when in the tunnel, while Pac-Man's speed remains unchanged.

During each board, a fruit will appear just below the ghost box. The fruits increase in value as the number of boards go up. (See Table 1)

TABLE 1 — Fruit Values

Board Number	Fruit	Fruit point value
1	Cherry	100
2	Strawberry	300
3	Orange	500
4	Orange	500
5	Apple	700
6	Apple	700
7	Grenade	1000
8	Grenade	1000
9	Torch	2000
10	Torch	2000
11	Bell	3000
12	Bell	3000
13 and up	Key	5000

GENERAL TIPS

Pac-Man is a game that is most easily mastered by using patterns, or pre-planned path sequences, which allow you to eat most of the dots based on the idea that if the ghosts will react to you in the same way every time. Except for minor changes, this is true. However, there are some general things to learn about the game which will help the beginner and expert alike improve his/her score.

The thing to remember is be patient. The worst thing you can do is double back in the same area just to get that last row of dots. If you stay too long in one area, the ghosts will zero in on you and will indulge in a four-on-one tag-team that you are sure to lose.

Unless, of course, you are waiting near an energy dot. In that case, you *want* to lure the ghosts near you, because eating the ghosts, or munching, as aficionados call it, is the key to higher scores. The difference between the expert player, who will score over 100,000 points, and the true Pac-Man Wizard, who can go over 200,000, is the ability to munch.

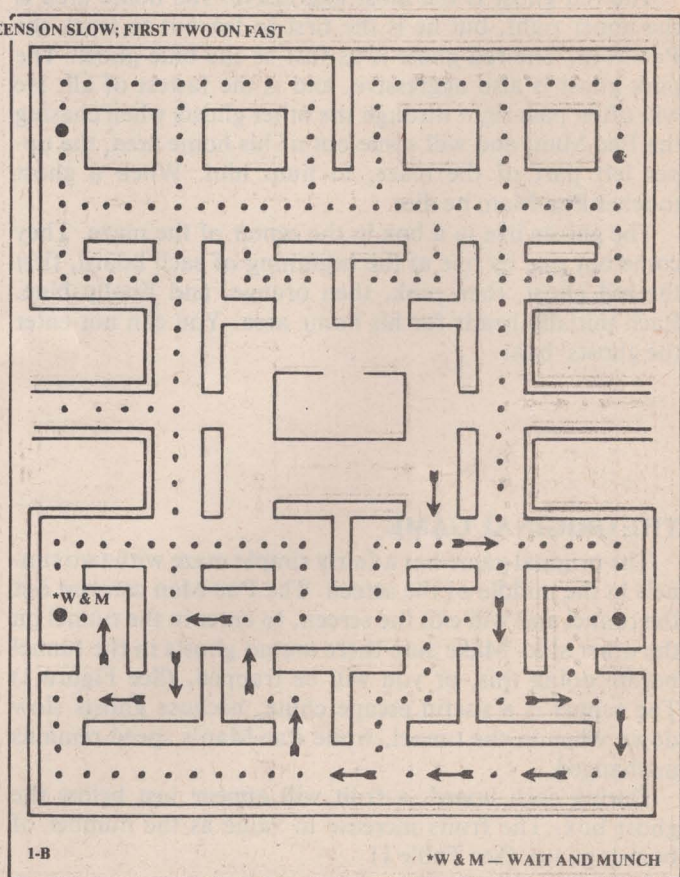
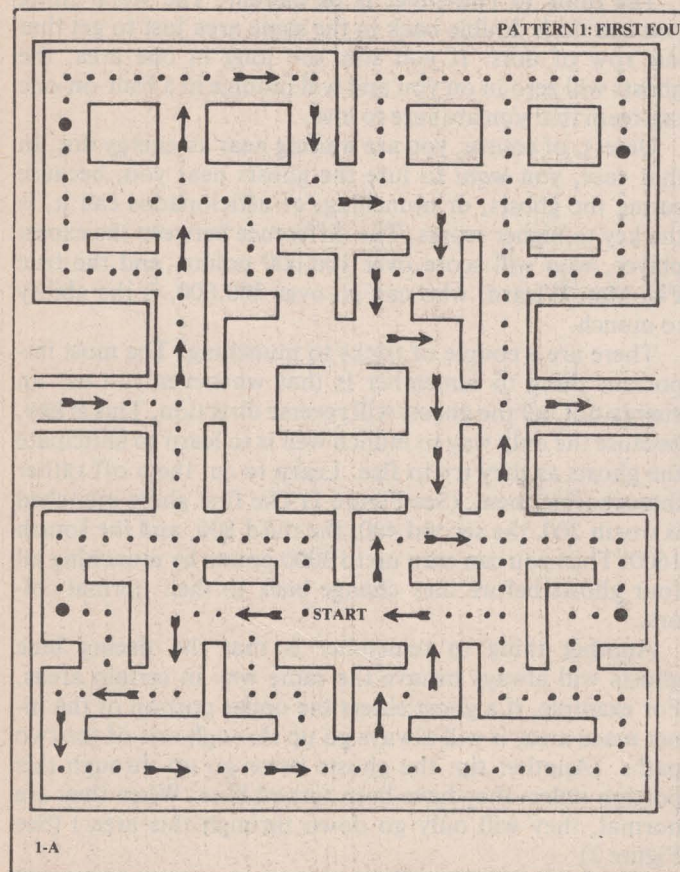
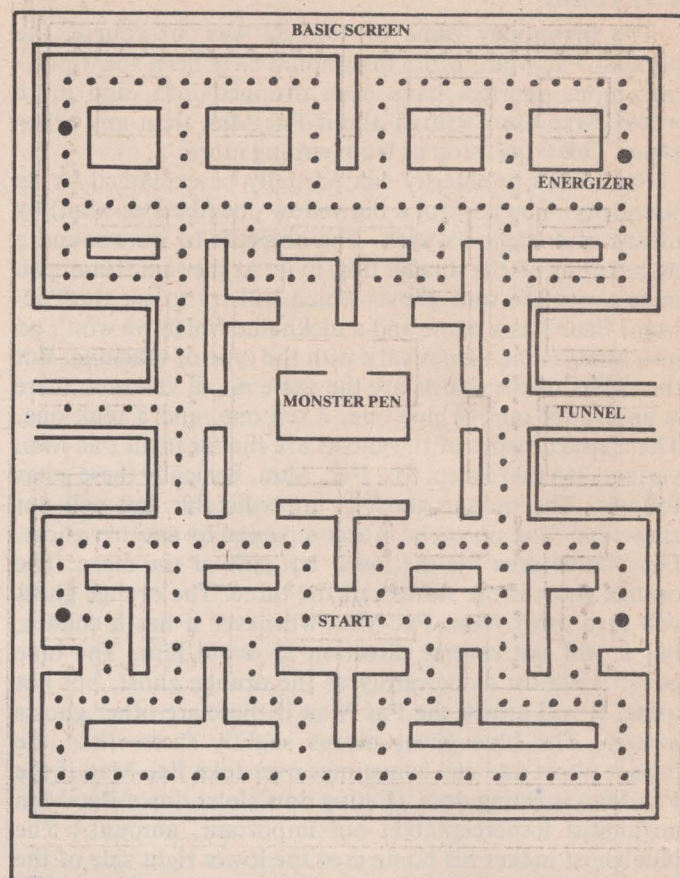
There are a couple of tricks to munching. The most important thing to remember is that whenever you eat an energy dot, all the ghosts will reverse direction. This is key, because the only way to munch well is to learn to anticipate the ghosts as they try to flee. Learn to cut them off rather than chasing them. (See Figure 1) The first ghost munched is worth 200, the second 400, the third 800, and the fourth 1600. Thus you can earn up to 3000 points by munching all four ghosts before they change back to their normal colors.

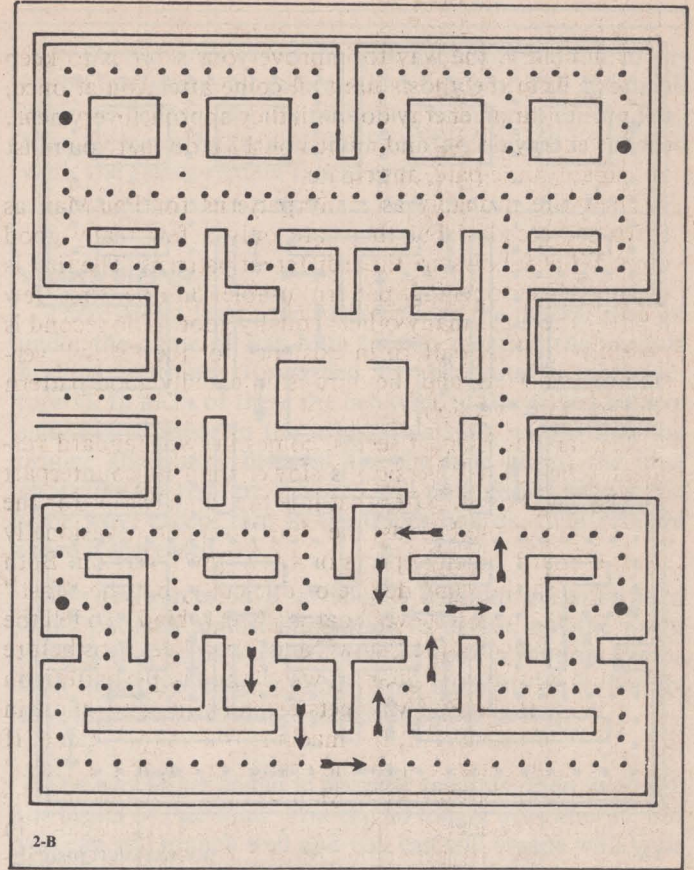
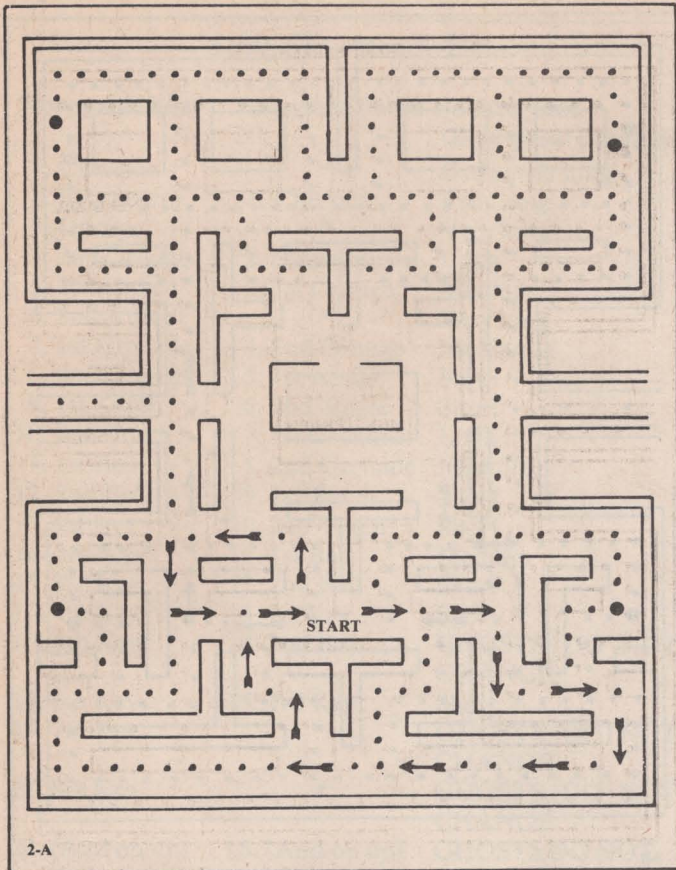
Another thing to remember is that the fleeing blue ghosts will always behave the same way in certain areas. For example, if a ghost enters the upper portion of the inner maze area, it will always go up through one of the two paths. (Another tip: the ghosts *never* go up through this portion unless they have been turned blue. When they are normal, they will only go down through this area.) (See Figure 2)

In summary, the way to improve your score is to keep running from the ghosts until all come after you at once, then wait near an energy dot until they approach very near, eat the energy dot — and munch out! To do that you must anticipate, anticipate, anticipate.

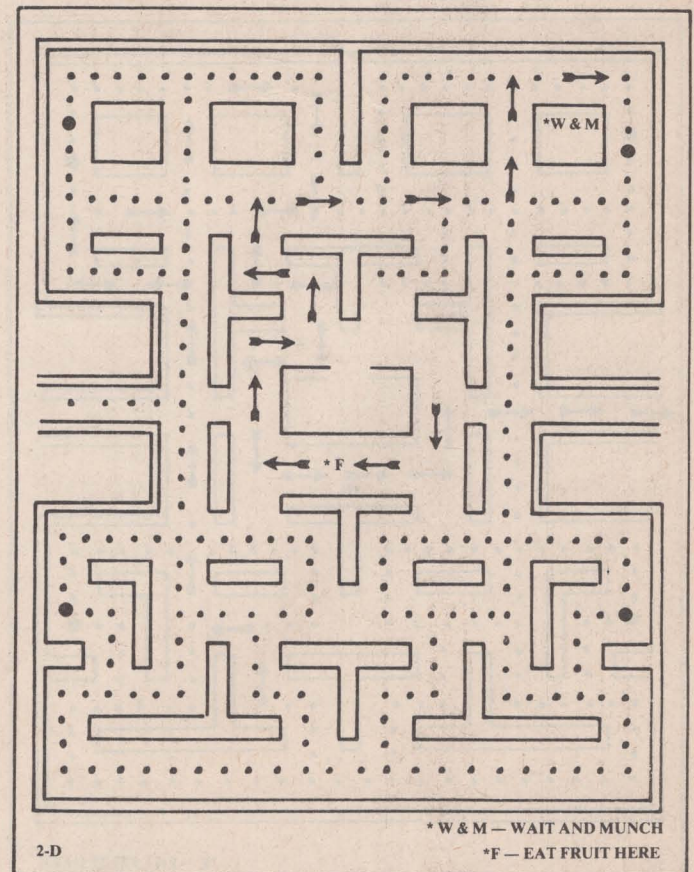
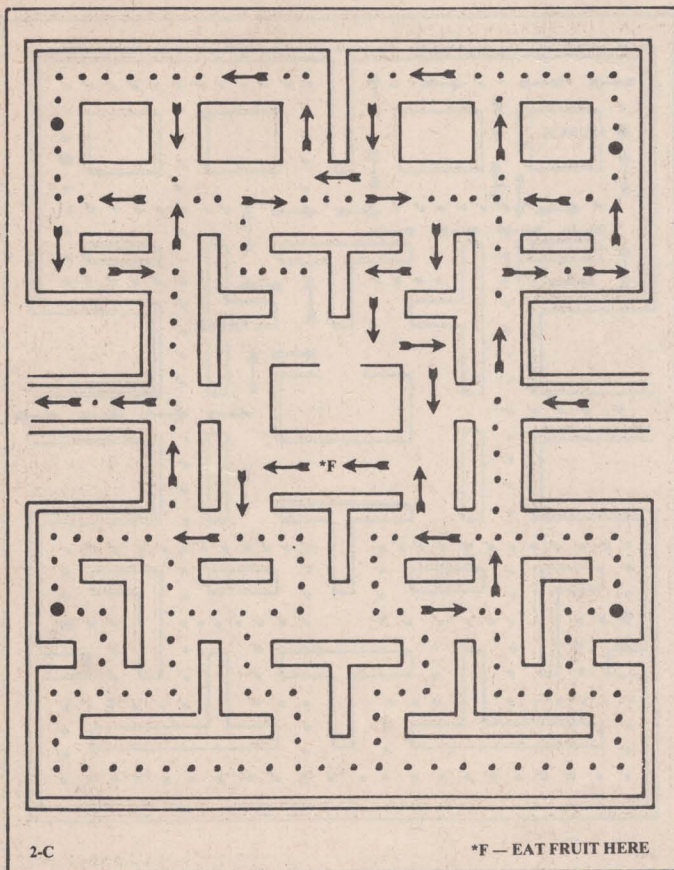
There are probably as many patterns for Pac-Man as there are arcades, but there are only a few really good ones. What follows are three different patterns. The first is an imperfect opening pattern usable on the first few boards; there are many others equally good. The second is possibly the best pattern in existence for the “slow” version of Pac-Man, and the third is an equally good pattern for the “fast” version.

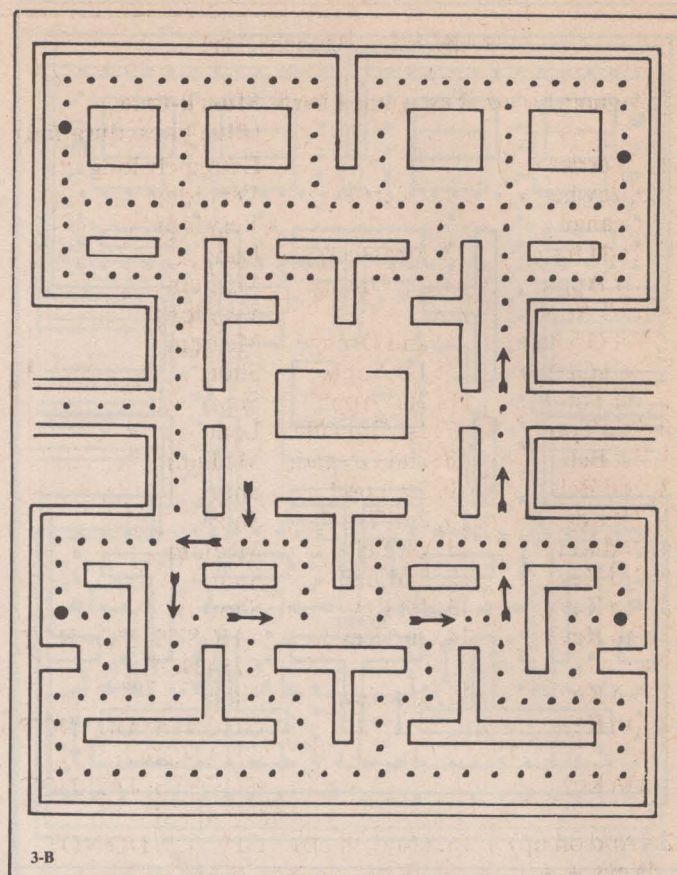
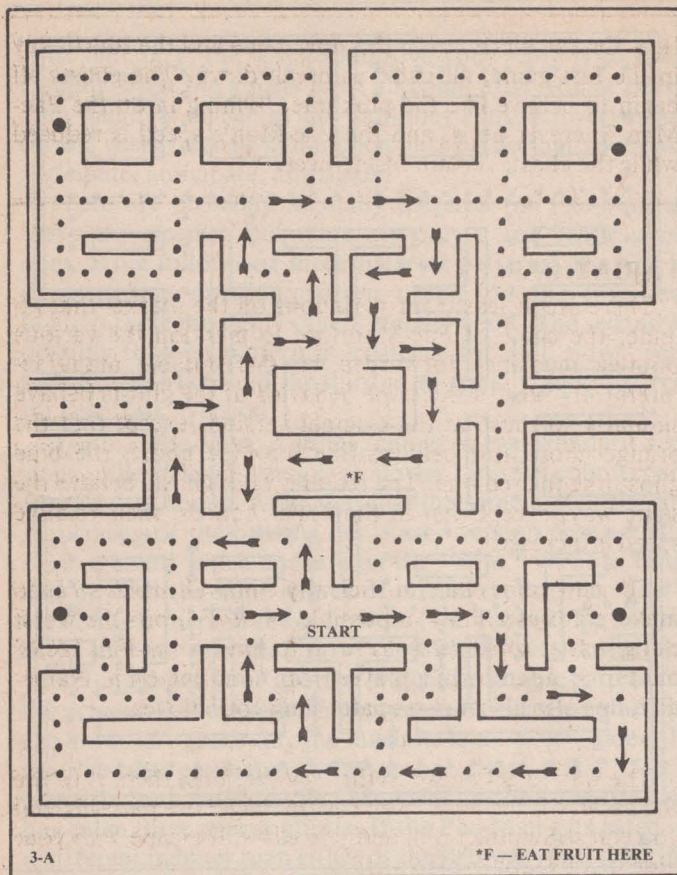
Regular Pac-Man, it seems, comes in two standard versions. The “slow” version is slower than its counterpart for the first board. After that it is the same except for the sequencing of the boards; the “fast” version occasionally skips a board which appears on the “slow” version. Both end up with the same degree of difficulty, but the “fast” version gets there in fewer boards. (See Table 2) To tell the difference between the “slow” and “fast” versions before you plunk down your quarter, watch the sample pattern on the screen. If the Pac-Man gets eaten by the blue ghost in the lower left quadrant, the machine is a “slow” game. If the Pac-Man gets eaten by the orange ghost, it is a “fast” game. In both cases the Pac-Man will not be eaten until he has eaten three energy ghosts. If the Pac-Man gets eaten in a different manner than either of the two ways just described, the machine has a new program and the patterns that follow may not work.





PATTERN 2





PATTERN 3

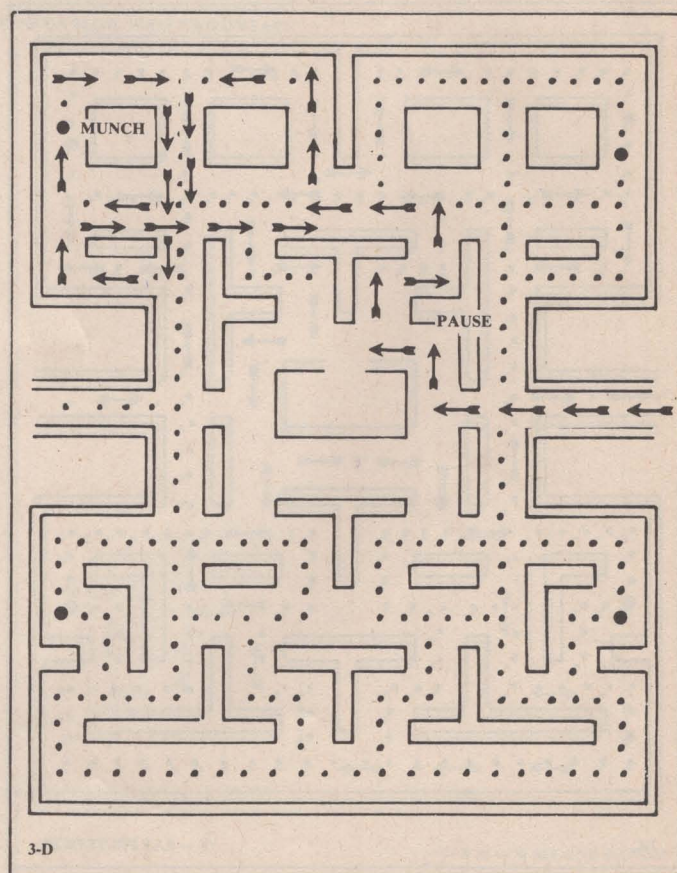
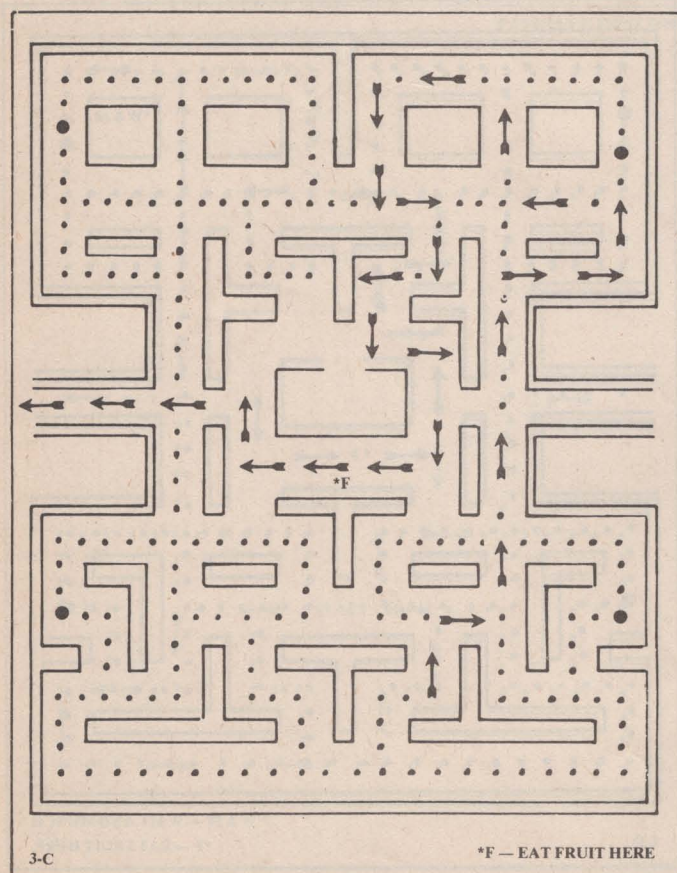


TABLE 2 — Munch-Time

Slow-game board	Fast-game board	Munch-time (Blue-ghost duration)
1. Cherries	*	Extremely long
2. Strawberry	1. Cherries	Very long
3. Orange	*	Very long
4. 2nd Orange	2. Strawberry	Long
5. 1st Apple	3. 1st Orange	Medium
6. 2nd Apple	*	Very long
7. 1st Grenade	4. 2nd Orange	Medium
8. 2nd Grenade	5. 1st Apple	Short
9. 1st Torch	6. 2nd Apple	Short
10. 2nd Torch	7. 1st Grenade	Long
11. 1st Bell	8. 2nd Grenade	Medium
12. 2nd Bell	9. 1st Torch	Short
13. 1st Key	10. 2nd Torch	Short
14. 2nd Key	11. 1st Bell	Medium
15. 3rd Key	12. 2nd Bell	Short
16. 4th Key	13. 1st Key	Short
17. 5th Key	14. 2nd Key	GHOSTS DO NOT CHANGE
18. 6th Key	15. 3rd Key	Short
19. 7th Key	*	GHOSTS DO NOT CHANGE
21. 8th Key	*	GHOSTS DO NOT CHANGE
22. (And on up) Keys ++	16. (And on up) Keys ++	GHOSTS DO NOT CHANGE

++ On the ninth key in the slow game and the fourth key in the fast game, all patterns break down. The ghosts all begin to behave like the pink one, homing in on the Pac-Man wherever he is, and the Pac-Man's speed is reduced while the ghosts remain fast as ever.

VARIATIONS

There are at least four variations on the market that go under the name of Pac-Man (not to mention the various bootleg machines forwarded by disreputable manufacturers). In most of these the behavior of the ghosts behave similarly to those in the original version, except that the orange ghost now behaves like the blue ghost, the blue ghost like the red one. The red and pink ghosts behave the same way, except that in the upper boards, their relative speed is increased.

The new games have sufficiently complex mazes so as to make patterns almost impossible to devise, but the worst thing is that some versions seem to have a random factor built in to discourage a player from counting on it. Naturally, this also discourages patterning your moves.

The way to get ahead in the new versions, then, is to use the basics of Pac-Man. You can no longer use patterns, but you can still munch well and you can still escape with your hide if you learn to plan ahead.

MS·PAC-MAN

Ms. Pac-Man was apparently conceived on the premise that there were a lot of women out there playing Pac-Man, so why not cater to the ladies? But because Ms. Pac-Man is still basically a more challenging version of Pac-Man, it has proven popular with the masculine crowd as well, making Ms. Pac-Man possibly the most popular spin-off game ever marketed.

THE GAME

The control stick in Ms. Pac-Man is exactly the same as the one in Pac-Man: a single joystick used to maneuver the Ms. Pac-Man in four directions. But Ms. Pac-Man herself is a little different from her male counterpart. She has red lips and a pink bow in her hair. And the sound she makes when eating dots is more dainty than the loud gobbling sound Pac-Man makes.

The four ghosts are back from Pac-Man, but they can no longer be relied upon to do anything predictable. You can get caught from behind by the pink one, the red one or the blue one, and even the orange ghost will sometimes run unexpectedly towards you. (He is still the most cowardly, however.) Complicating matters still more are the three different mazes in Ms. Pac-Man. Just about when you get used to one, you must learn a whole new maze. And the ghosts behave differently on each successive screen.

Another difference is the fruits. They no longer appear in a stationary position below the ghost pen. Now they enter the screen from one of the tunnels and bounce around through the maze for a while before exiting from another tunnel.

One difference that has nothing to do with how the game is played is the music. It has been replaced by the Act. Act One comes after the completion of the first two screens and before the blue maze. The acts are romantic interludes in the harried existence of Ms. Pac-Man. In Act I, "They Meet," Ms. Pac-Man and Pac-Man appear separately, each chased by a ghost. They then appear simultaneously on opposite sides of the screen and run towards each other, still being chased by the ghosts. At the last instant they dodge straight up, and the monsters collide with a *pop!* Ms. Pac-Man and Pac-Man kiss. In Act II, "The Chase," Ms. Pac-Man shoots after Pac-Man as he streaks across the screen. Act II comes after the third blue maze. In Act III, "Junior," which comes after the third orange maze, Ms. Pac-Man has apparently caught her man, because a stork flies across the screen leaving the happy couple with a cute little Pac-Baby.

GENERAL STRATEGY

Because you cannot use effective patterns in Ms. Pac-Man, munching and patience are even more important in reaching high scores. To munch well you use the same basic tactics that you used in Pac-Man. The ghosts still

turn blue and reverse direction whenever you eat an energizer, and they still flash before they are about to change back into normal ghosts.

The first two patterns have four tunnels instead of two. The tunnels are very important to keep in mind as escape routes.

THE PINK MAZE

The pink maze is the easiest of the mazes and comes first. The ghosts move very slowly on the first screen and still move fairly slowly on the second screen. The four tunnels make it very easy to elude them, but be especially careful when up at the top of the screen. The red and pink ghosts like to use the inner paths to cut you off. (See Figure 1) Because the pink maze is relatively easy, good players try to lure the ghosts into ganging up on them. Then they munch all four. It is possible with practice to get all four ghosts every time on both pink maze screens. All it takes is patience and careful avoidance of the trouble spots at the top of the screen. These areas should only be cleared out when you are one-on-one with a ghost, *never* when there are several in the vicinity.

THE BLUE MAZE

The blue maze is a tough one because there are several areas where long corridors make it easy to get cut off. The most dangerous area is at the top in the U-shaped corridor just above the monster pen. Try to clear this corridor and the trough above it, out early. Figure 2 shows an opening sequence that will work on the first two blue screens with about 90% reliability. Just remember never to enter the corridor with a ghost on your tail unless there are no ghosts near the other entrance!

After clearing out the U-shaped path, you are on your own as far as patterns go, but there are some things you can do. For example, since the blue maze is so complicated, the ghosts are easier to deal with if you can get them to all get together and come after you. As long as you don't double back, they will be unable to cut you off. A common trick is to wait near the entrance to one of the lower tunnels. When the ghosts home in on you, wait until they are near and then run out the tunnel. Upon emerging from the other side, go upward and clear out one of the side corridors, then go out the top tunnel to the other side and come back down. (See Figure 3) This strategy can be effective in the upper tunnels, but it is easier to get trapped there because the ghosts are likely to enter the tunnel from the opposite side while one of their brothers comes up from beneath. A better rule is: don't hang around too long in the upper tunnel.

THE ORANGE MAZE

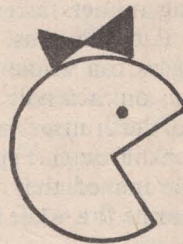
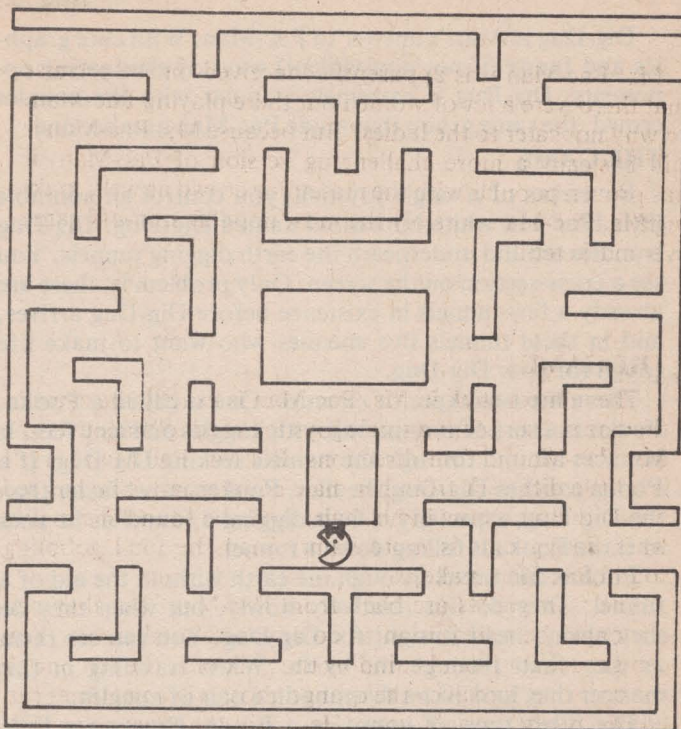
The orange maze is even more difficult than the blue maze, both because there are even more places where it is

easy to get cut off and because the ghosts now move substantially faster than Ms. Pac-Man. To make matters worse, there are only two tunnels, they are located near the top of the screen, and the ghosts do not slow down when going through them.

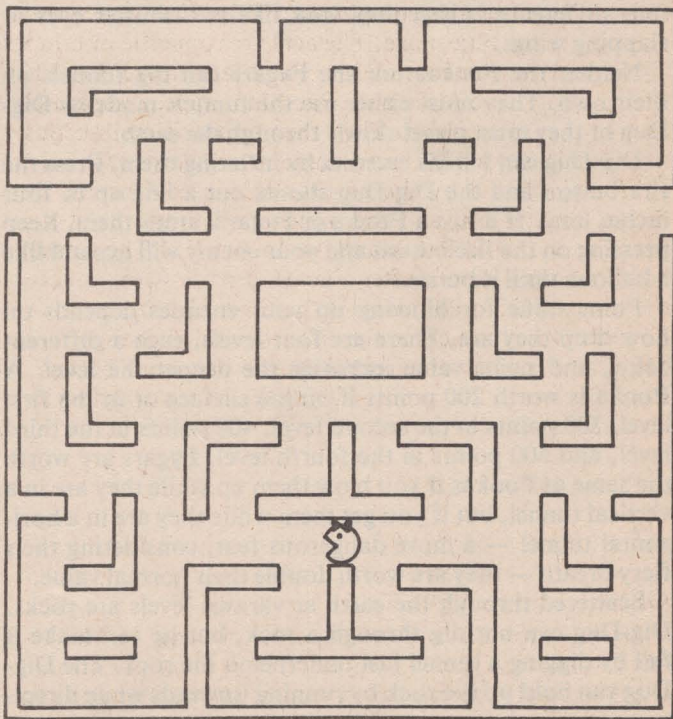
The most dangerous part of the maze is the single-entrance box which is located at the bottom of the screen. (See Figure 4) Clear out this area before doing anything else. The next most dangerous place is the upper center. After clearing out the box you should head for this area and try to clear some of it out before the ghosts all begin to home in on you. Fortunately, on the first orange screen the munch-time is very long, so you can keep sending most or all of the ghosts back to their pen. On succeeding orange screens, however, the munch is very short. Basically, with the tunnels providing only limited help, getting through the orange screen safely becomes a matter of reflexes.

Board #	Maze	Fruit	Fruit Point value	Munch-time
1	Pink	Cherry	100	Extremely long
2	Pink	Strawberry	200	Very long
3	Blue	Orange	500	Very long
4	Blue	Pretzel	700	Medium
5	Blue	Apple	1000	Short
6	Orange	Pear	2000	Very long
7	Orange	Banana	5000	Short
8	Orange	Random	100-5000	Short
9	Blue	Random	100-5000	Short

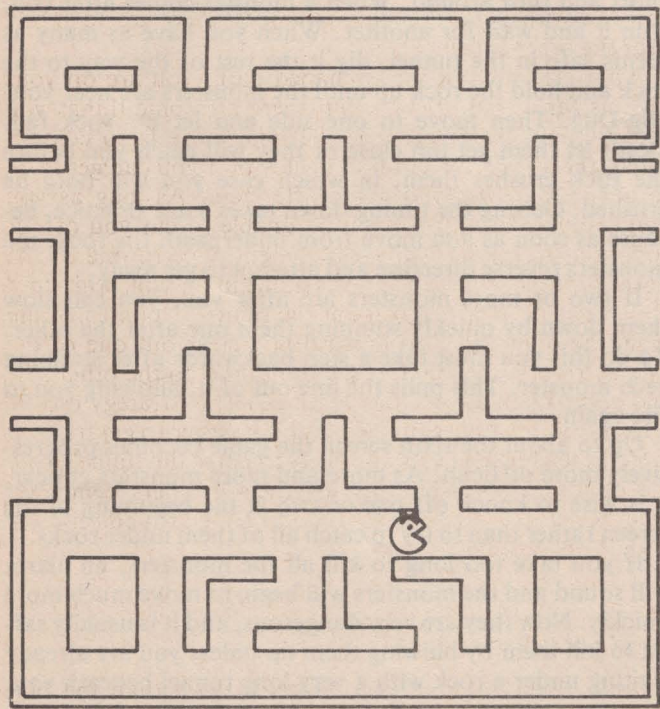
The Blue Maze



The Orange Maze



The Pink Maze



DIG DUG

Dig-Dug is Atari's answer to Pac-Man. With cute graphics and funny (if not non-violent) ways of eliminating opponents, Dig-Dug is extremely popular with the couples crowd, the same group that made Pac-Man number one.

THE GAME

By means of a single joystick, you control an adorable little blue and white humanoid named Dig-Dug. Dig-Dug trundles around underneath the earth digging tunnels. You see a cross-section on the screen. Only problem is, there are already a few tunnels in existence before Dig-Dug arrives, and in these tunnels live enemies who want to make life rough for your Dig-Dug.

There are two types of enemies. One is called a Pooka. Pooka is a sort of orange ball with goggles and tiny feet. It bounces around through the tunnels seeking Dig-Dug. If a Pooka touches Dig-Dug, he dies. Pookas move faster than the Dig-Dug, especially if he is digging a tunnel as he goes or if the Pooka is falling down a tunnel.

Pookas can travel through the earth without the aid of a tunnel. They do this relatively slowly, but when they do they always head straight for Dig-Dug. You can see them as they float through the earth. When traveling in this manner they look like a disembodied pair of goggles.

The other type of enemy is a Fygat. Fygats are little green dragons. They also move faster than Dig-Dug, but they are not as smart as the Pookas. When they are in a horizontal tunnel, Fygats can breathe fire. The fire will travel up to four inches, and is deadly to the Dig-Dug if he is caught in it. A wall of earth stops the fire, but if the wall is very thin some will leak through. Fygats pause, flap their wings, and turn purple immediately before they breathe fire. Fygats can not breathe fire while in vertical tunnels or traveling through the earth.

Fygats can travel through the earth without using tunnels, and when doing so behave exactly like Pookas. The only difference is that they look like two sinister eyes or flapping wings.

Neither the Pookas nor the Fygats can dig tunnels on their own. They must either use the tunnels made by Dig-Dug or they must travel slowly through the earth.

Dig-Dug can kill his enemies by inflating them. Press the fire button and the Dig-Dug shoots out a line up to four inches long. If it hits a Pooka or Fygat it stuns them. Keep pressing on the fire button and your enemy will expand like a balloon until it bursts.

Point value for blowing up your enemies depends on how deep they are. There are four levels, each a different color, and point value increases the deeper the level. A Pooka is worth 200 points if on the surface or in the first level, 300 points in the second level, 400 points in the third level, and 500 points in the fourth level. Fygats are worth the same as Pookas if you blow them up while they are in a vertical tunnel, but if you get them while they are in a horizontal tunnel — a more dangerous feat, considering their fiery breath — they are worth double their normal value.

Scattered through the earth at various levels are rocks. Dig-Dug can not dig through a rock, but he can make it fall by digging a tunnel just underneath the rock. The Dig-Dug can hold up the rock by running upwards while direct-

ly beneath it, but if he does not do this the rock will teeter for about one second and then fall, crushing the Dig-Dug or any monsters that are beneath it. The rock comes to rest when it meets earth, but it will crash through a very thin wall. After it lands it breaks into pieces and after a few seconds it disintegrates. The pieces stop Dig-Dug but not the monsters, and fire passes right over them. The monsters can also float right through an intact rock.

If you crush either a Pooka or a Fygat with a rock it is worth 1000 points. The depth does not matter. For every additional monster crushed with the same rock you get 1500 points.

You can earn points in two other ways. Just for digging tunnels you get 10 points approximately every inch and a half. And once per screen a fruit will appear in the spot where Dig-Dug starts. It remains on the screen for 10 seconds, and its value varies from 400 points for a mushroom to 5000 points for a polka dot banana. But the fruit only appears after you have dropped three rocks.

Points are nice to have, both because you can tell if you beat your opponent that way and because if you earn enough of them you get an extra man. Most Dig-Dugs are set to give an extra man at 10,000 and 40,000 points. You get three men initially.

THE STRATEGY

Part of the appeal of Dig-Dug is its simplicity. There really isn't much high strategy. Still, here are a few tips for getting high scores.

Try to kill as many monsters as you can by dropping rocks on them, and try to get as many as possible with one rock. If you are in a horizontal tunnel you will only get one at a time, so trap the monsters in long vertical tunnels. Dig a tunnel nearly up to a rock, but stop a couple of inches short and turn around. When a monster comes after you, stun it and wait for another. When you have as many as seems safe in the tunnel, dig it the rest of the way to the rock and hold the rock up until the monsters are near your Dig-Dug. Then move to one side and let the rock fall. Don't let them get too close or they will catch you before the rock crushes them, in which case you will both be crushed. Getting the timing down takes some practice, because as soon as you move from underneath the rock, the monsters reverse direction and attempt to get away.

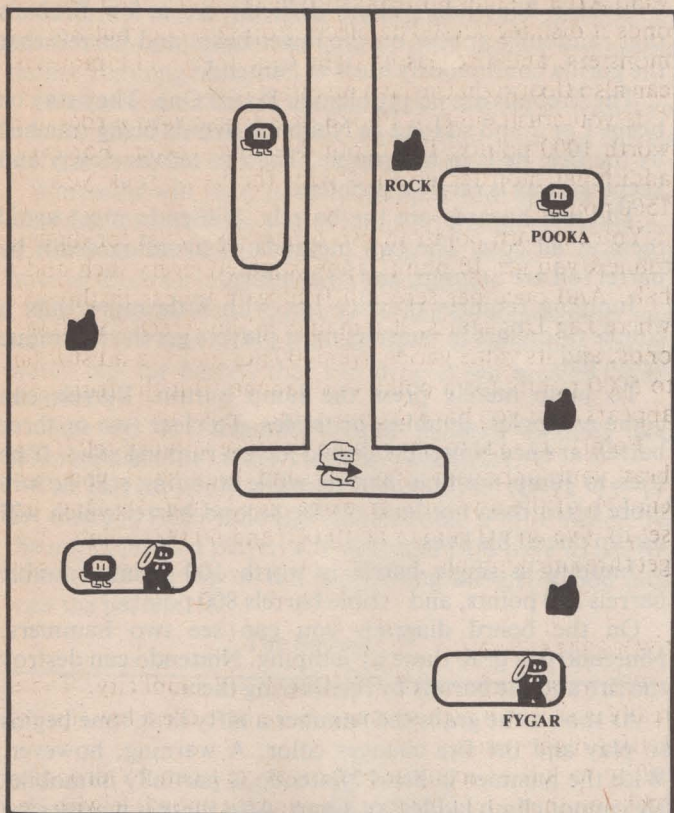
If two or more monsters are after you, you can slow them down by quickly stunning them one after the other. To do this you must take a step backwards after stunning each monster. This pulls the line out of it, allowing you to fire again.

Up to about the sixth screen the game becomes progressively more difficult. As more and more monsters appear, it is wise to knock off one or two at the beginning of the screen rather than to try to catch all of them under rocks.

If you take too long to kill all the monsters, an alarm will sound and the monsters will begin to move much more quickly. Now they are very dangerous, and it is usually safest to kill them by blowing them up unless you are already waiting under a rock with a very long tunnel beneath you.

The monsters now are moving so fast that they will easily escape from short tunnels.

Try to avoid making side tunnels leading to a rock, as the monsters will use them to dodge it.



DONKEY KONG

THE GAME

Donkey Kong is the one video game with romance. It has everything — a mean King Kong-like gorilla, a heroic carpenter by the name of Nintendo, and beautiful damsel in distress who loves music. For what more could a man ask.

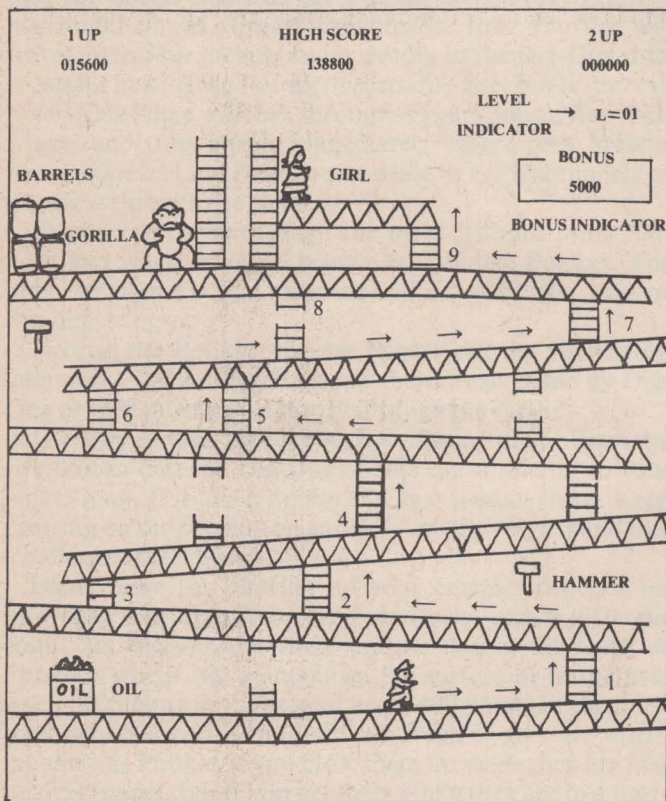
In Donkey Kong, there are four boards that repeat themselves. As with all video games each board is quicker and more difficult upon the repeat. In all four boards the gorilla stands on a platform 25 meters high holding the fair lady hostage. On three of the boards Nintendo has to make his way to the top in his rescue attempt. On the fourth board he has an opportunity to knock the gorilla down.

Nintendo begins the game with three lives. If the player scores over 7,000 points (this can be adjusted) Nintendo gets a fourth life. The object of the game is to score as many points as possible during Nintendo's life span.

The controls to Donkey Kong are simple. On the left there is a four directional joy stick that can cause Nintendo to move right, left, up, or down. On the right there is a jump button that makes Nintendo jump over obstacles.

Now for the game.

The Barrels:



In Board One, the gorilla stands at the top of a series of beams stretched across the screen. Connecting the beams are several ladders that Nintendo must climb to get to the

top. As soon as Nintendo reaches the top, our girl projects her love via a pounding heart but alas Nintendo is allowed to enjoy himself for but a moment for upon seeing our hero, the gorilla grabs the girl and climbs another 25 meters to the top of Board Two.

Making Nintendo's climb difficult are a few fireballs that randomly appear on the lower beam and barrels that the gorilla continuously hurls at Nintendo.

The fireballs are no problem in Board One. They stay on beam 1 or 2 and so long as Nintendo avoids being touched by the fire, he is in no trouble. The fire moves slowly and keeping away is rarely a problem.

The real hazards are the barrels. Nintendo must avoid them at all cost. The two methods of avoiding death by barrel roll are a) jump, and b) hammer.

Jumping requires practice but with little more than a couple of dollars in quarters most players get the technique down pat.

To jump merely press the jump button. Barrels can come as singles, doubles, or triples. To clear two or three barrels at once Nintendo should have a running start. If he tries to jump multiple barrels while standing still he will more often than not land on the second barrel which will use up one of his lives.

Jumping a single barrel is worth 100 points, double barrels 300 points, and triple barrels 800 points.

On the board diagram you can see two hammers. Nintendo can grab these by jumping. Nintendo can destroy the fire and the barrels by hammering them.

As soon as he grabs the hammer a nifty little tune begins to play and the fire changes color. A warning, however. With the hammer in hand Nintendo is partially immobile. He cannot climb ladders or jump. Also there is no warning as to when the hammer disappears. The player must be ready to move quickly when the hammering stops.

Hammering any object is worth 300, 500, or 800 points depending on how far away it is when it is hit. A player will see more 300 scores when hammering than anything else.

The player can use another strategy by climbing a ladder part way and waiting for the barrels to pass underneath him. Waiting is necessary since barrels can drop directly on Nintendo's head from the upper beam. In many games the barrels will not roll down the ladder onto the hero's head if Nintendo keeps his fingers on the upper beam. This strategy works for most games. It does not work for all. The player must test the board in order to test the strategy.

Scoring — Board 1: Every board starts out with a bonus of 5000, 6000 (board 3), 7000 (board 6), or 8000 (board 10) points depending upon difficulty level that is being played. This bonus is like a time clock. It steadily declines with time. When Nintendo gets to the top he gets whatever bonus is remaining. If the bonus gets to zero, Nintendo uses up a life.

The player also gets points for jumping barrels but for a good player jumping single barrels does not mean much since the bonus decreases by the same 100 points that is gained by jumping in the first place. Smashing items is always worthwhile since the player gains more points than he loses on the bonus clock.

THE STRATEGY

Board 1: Nintendo should run and climb ladder 1 as quickly as possible, stopping short of ladder 2. He then waits until the first barrel rolls over the ladder. If he does not wait and is too slow in climbing ladder 2, the first barrel will come crashing onto his head.

After the barrel rolls past the top of ladder 2, Nintendo must hurry and climb the ladder, stopping for a moment before climbing ladder 4.

Nintendo should wait at the side of 4 until at least two barrels roll over ladder 4. He should wait until the barrels roll almost to the base of 4. He then climbs the ladder.

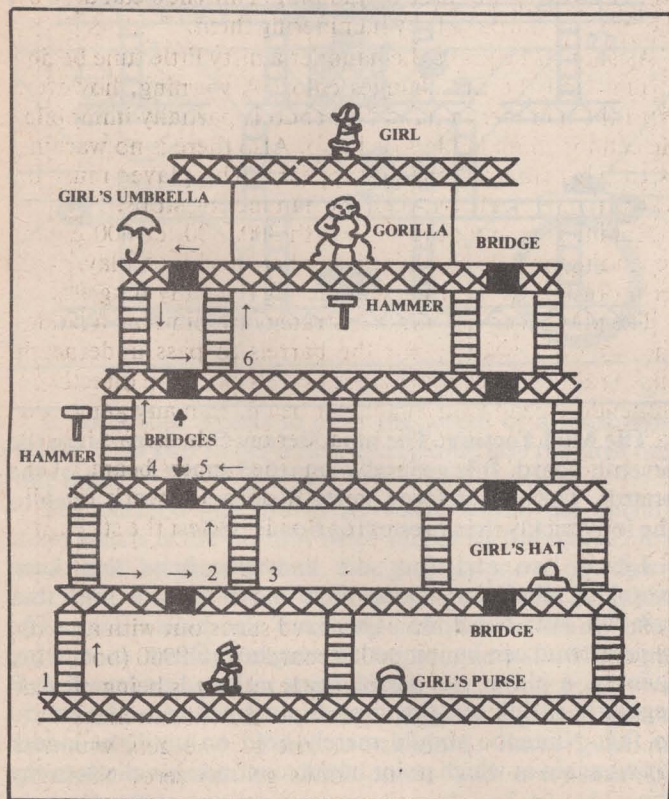
Nintendo will then have to jump a few barrels before climbing either ladder 5 or 6. Ladder 5 should be the choice if Nintendo decides to make a dash for ladder 7. (He will have to do some jumping during this dash.)

Six is chosen if the choice is to pick up the hammer and smash a few barrels on the way to 7. In smashing barrels watch out for barrels that can drop down broken ladder number 8.

Once up 7, Nintendo should make a running and jumping dash for ladder 9 and his sweetheart.

The barrels return again in boards 3, 6, 10, 12, 15, 17, 19, and 21. Each time the barrels come a little faster. At the upper levels a player will almost always have to use the hammer at the top or fail in reaching the girl. Good luck with the barrels.

The Spikes:



The spikes make up the last board of each difficulty level. All of the beams are connected by yellow spikes that disappear when Nintendo runs over them. With the spikes gone, the staging that supports the gorilla can no longer

hold Kong up. The staging disappears and Kong comes crashing down. Kong's demise signifies the end of a difficulty level and a new round of Kong then begins with another board of barrels.

Nintendo can jump back and forth across the beams even though the spikes are missing. He cannot walk across an open (spikeless) beam. He must jump across it. Since he cannot jump with a hammer in his hands, attempting to cross an open beam while hammering uses up a life.

The only hazard on the spikes board is fireballs. The fireballs can follow Nintendo up a ladder or down a ladder three and four at once.

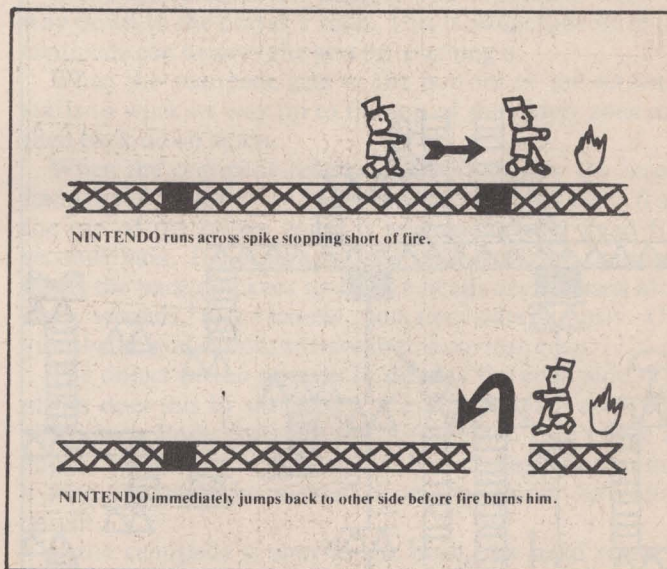
Scoring — Board 2: Our heroine leaves behind a purse, an umbrella, and a hat. Our hero gets 300 points for picking these up on the first spike board, 500 on the second spike board and 800 points on the third. The only other means of scoring is to use the hammer on the fireballs. The same rules apply on all boards when hammering.

THE STRATEGY

Board 2: Nintendo should work his way in a zigzag motion up to the top removing all of the spikes on one side of the board first. For example he should move left to ladder 1, cross the spike to ladder 3 move up and back to 4, up and across to 6, climb, retrieve the umbrella, then move down 5 and stop. Whew!!!

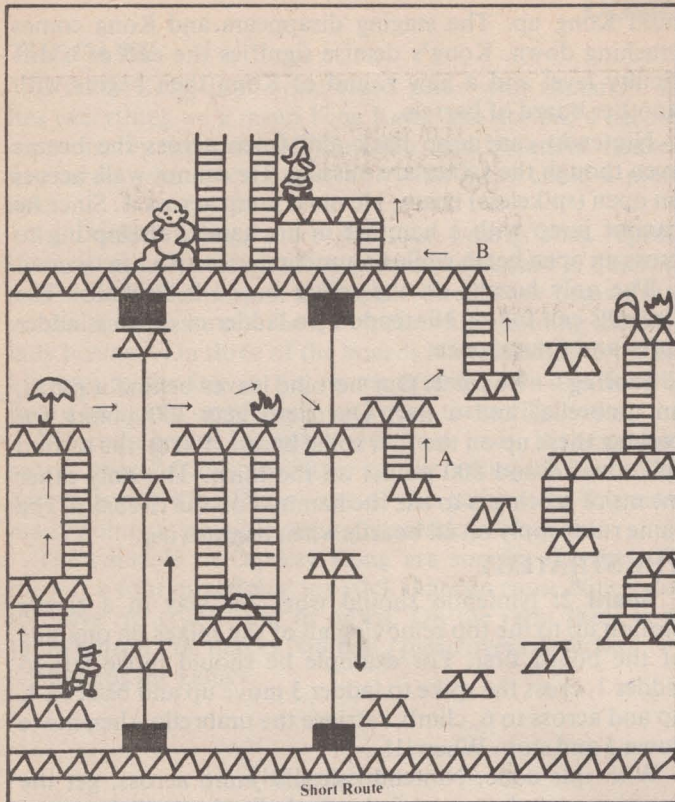
With this done, Nintendo should jump across, get the hammer, smash some of the fireballs that will have accumulated and then work his way back down the other side.

One move that is very handy on this board is the quick jump and jump back described in the next figure. Study it carefully. The move can save Nintendo's life.



A last trick is called shaking the stick. When the fire is close, the player can move his stick to the right and left very quickly. The fire will also shake back and forth. Eventually it should disappear. This move requires excellent timing and a quick but delicate touch.

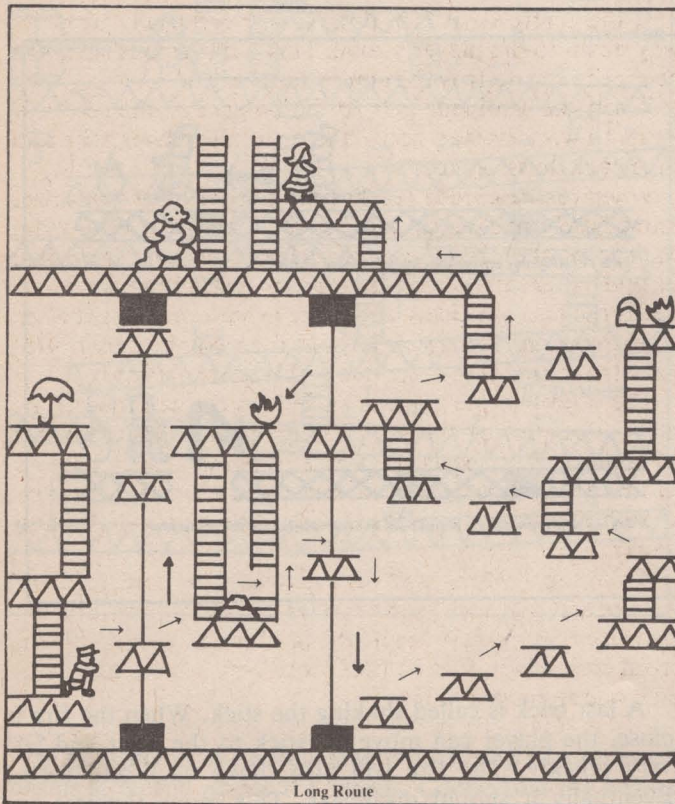
The Elevators:



The elevators first appear as board 4. The only difficulty with the elevators is timing. A player's jumping must be exact or Nintendo falls and loses his life.

There are two fireballs on the elevator board. These are fairly harmless and can be avoided. The real problem is

The Elevators:



falling anvils. Nintendo must time his movements so as to avoid running under one of them as they drop.

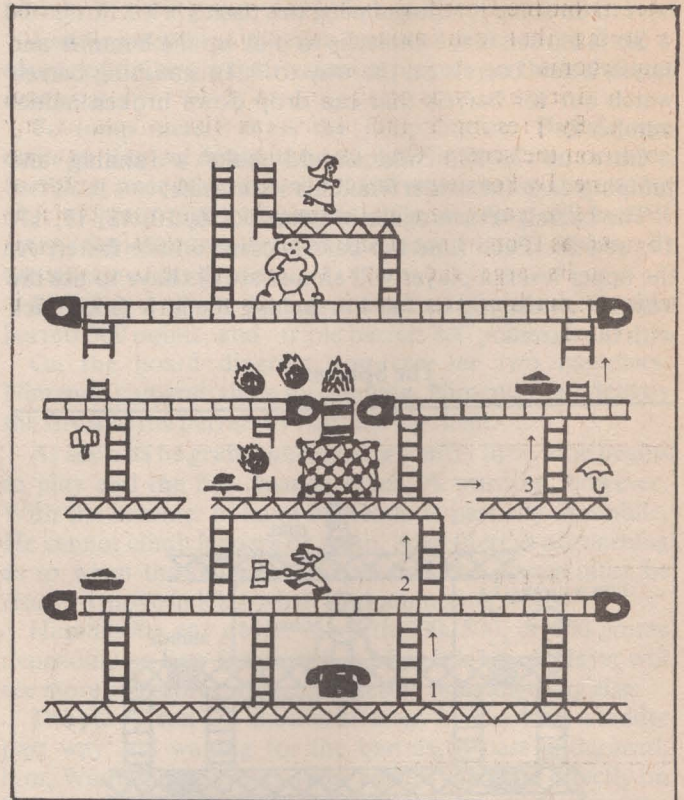
Scoring: Get to the top as quickly as possible in order to preserve bonus points. There is a hat, an umbrella, and a purse. Many players skip these in favor of saving time and bonus points.

THE STRATEGY

There are two possible paths to the top. Really good players jump off the down elevator to point A in order to save time. This is very tricky. Most players take the long route.

A player does not have to worry about the anvils while standing at point B. However he must time his run and move as quickly as possible when reaching for the final ladder.

The Mud Factory:



The Mud Factory: The mud factory first appears on the seventh board. It is generally regarded as the easiest of the boards. The only strategy on the mud factory is to climb to the top quickly thus preserving bonus points.

Levels two and four are conveyor belts that keep switching direction. Along them move pans of mud that can run over Nintendo. There are also balls of fire. The pans of mud can be jumped or smashed. Often, by moving quickly, a player can avoid doing either. Ladders A & B regularly shrink but this motion does not cause Nintendo to fall. Nintendo should merely hold on until the ladder grows again at which point he can continue his climb to the top.

SIMPLE STRATEGY

A preferred path is to move right, pick up the purse, climb ladder 1, fight the conveyor and climb ladder 2, jump across towards the umbrella, pick it up, climb ladder 3, and fight the conveyor to climb ladder B.

CENTIPEDE

THE GAME

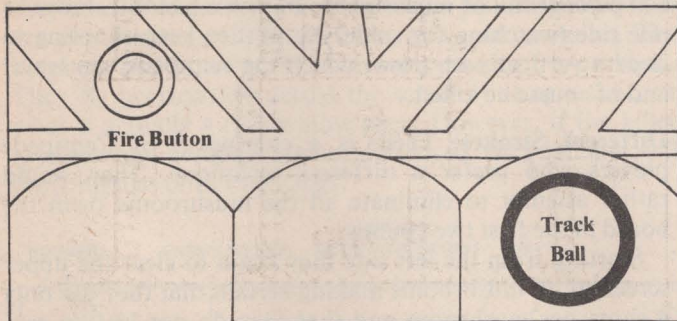
Atari's Centipede is quick, easy to learn, and fun to play. To be excellent requires first rate hand to eye coordination and quick reflexes. However, to get a quarter's worth of time and entertainment a player only needs average skills. There are only two controls in Centipede — a firing button and Atari's patented trak ball. With just a little bit of practice almost anyone can become competitive and have a good time.

There are six objects in Centipede: the player's gun, the centipede, spiders, mushrooms, fleas, and the scorpion or "painted lady".

The object of the game is to score points by shooting the objects on the board as well as to stay alive by avoiding anything that can move. Everything moves but the mushrooms.

The firing button is on the left hand side of the control panel. By pressing it the player can fire bullets at any object on the screen. Only one bullet can be on the screen at a time. By keeping a finger pressed on the fire button at all times a player can make sure that a second bullet is released as soon as the first one hits its mark. If the gun is close to its target the gun will appear to be continuously firing in machine gun fashion so long as the fire button is depressed.

Controls

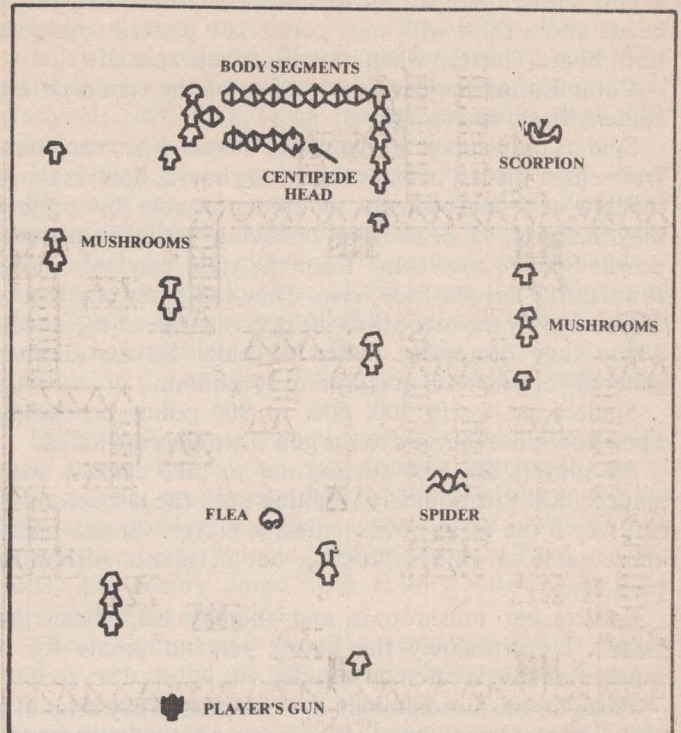


It takes four bullets to clear the screen of a mushroom and at least two to kill a flea. Everything else requires only one bullet.

The player's gun moves anywhere within the player's zone which is the bottom three inches of the screen. It is controlled by the trak ball. The gun can move up, down, sideways, and in circles. The one thing it cannot do is pass through a mushroom. Touching a mushroom has no effect other than forcing the gun to take another path. If the gun touches anything else it is destroyed.

Owners can set the number of guns a player gets at between 2 and 5. Three is standard. Extra guns are generally awarded at 12000 points and every multiple thereof. (This can be reset to multiples of 10, 15, or 20 thousand points.) The maximum number of guns a player can have waiting for him to use is six.

The game begins with a random assortment of mushrooms on the screen which is 30 columns high and 30 columns wide.



Next a centipede with a head and eleven body segments appears at the upper left hand corner. It moves slowly across the screen dropping one row and changing direction every time the head touches the edge of the screen or a mushroom.

If the centipede is left alone it will eventually work its way down to the player's zone. This is dangerous since the centipede can destroy the gun by touching it.

When the centipede gets to the bottom of the screen it starts to work its way up to the top of the player zone and then back down again.

When the centipede reaches the bottom row the screen immediately releases an independent centipede head from the top of the player zone. It releases another head five seconds later. If nothing is done to destroy the centipede heads the pace quickens and more heads are released after three seconds, two seconds, and then continuously. Obviously the gun cannot survive in this environment.

The object of the game is to destroy the centipede. The player does this by shooting it. Centipede heads are worth 100 points. Body parts are worth 10 points. Every time an entire centipede is destroyed, the board changes color and a new centipede is released from the upper left hand corner.

If the centipede is shot in the head, the head segment disappears but each segment remaining is immediately converted into a new head. By careful shooting, a player could technically receive 1200 points by hitting each new head one segment at a time.

If the centipede is hit in the body, the hit segment disappears and the centipede splits into two parts with the tail becoming the head of the new section.

Finally, in Board Two there are two centipedes that appear — a single head and an eleven part centipede. In Board Three there are three centipedes, two with single heads and a third with nine parts. The pattern continues until Board Thirteen when it begins to repeat itself.

Complicating the easy destruction of the centipede are spiders, fleas, and scorpions.

Spiders only appear in the player's zone. They can come from either the left or right side of the board. Spiders move quickly and unexpectedly. A spider attacks by zipping diagonally at 45 degrees or bouncing vertically up and down. Spiders that come from the right can only move towards the left and vice versa. They can never backtrack. They can only move towards the opposite side of the screen where they disappear. When a spider leaves, another generally appears but quickly and at random.

Spiders are worth 300, 600, or 900 points depending upon how close they are to the gun when they are killed.

All players are best advised not to take chances with spiders. Kill them quickly. Waiting until the last second is not worth the extra points unless a player wants a really short game or enjoys jumping out of planes without a parachute.

Spiders eat mushrooms and thereby help clear the board. Unfortunately the player gets no points for a mushroom that is eaten by a spider.

Fleas are the dive bombers of Centipede. They drop in a straight line from the top of the screen to the floor making a loud dive bombing sound. Fleas can destroy a gun. However, they are mainly of nuisance value since they crowd the screen by leaving a string of mushrooms in their wake. On some games fleas will not appear if there are five or more mushrooms in the player zone. This, however, is not true of all games. It takes at least two shots to destroy a flea. They are worth 200 points when killed.

Scorpions look like mermaids carrying Neptune's fork. They are worth 1000 points when hit. The "painted lady", as some aficionados like to call her, moves horizontally across the screen outside of the player zone. As she travels she poisons mushrooms and changes their color. When the centipede touches a poisoned mushroom it immediately takes a direct nosedive to the bottom of the screen. The nosedive is quick and can only be stopped by hitting the centipede in the head after which it will continue on its normal route.

Scorpions first appear in the fourth round.

Bonus Points: All of the methods of scoring have been described except for destroying mushrooms and bonus points.

Mushrooms are only worth 1 point. Again, it takes four shots to destroy one. However, at the end of a series of play, i.e., when a gun is destroyed the game awards the

player 5 extra points for every mushroom left on the screen that has been hit at least once.

THE STRATEGY

The first thing a player should do is clear the player zone of mushrooms. This gives the gun maximum flexibility. The only exception is to leave 5 mushrooms in the player zone to stop fleas from dropping in games where this tactic works.

Next try to eliminate the centipede by hitting it in the head with a slight sweeping motion towards the tail. In this way it can be eliminated with one series of shots.

The player should keep his eyes open for places where the centipede might get stuck bouncing quickly downwards between two walls of mushrooms. If the player positions himself properly he can have a quick kill by merely rapid-firing straight up.

Third, do not play next to either side of the screen unless you know where the spider is located. A spider can jump a player from the side before it's even spotted.

Fourth, do not panic if a centipede is poisoned. Immediately move to the bottom of the board. The centipede will dive to the floor but it will immediately bounce up one level and then slowly travel across the board moving up one row at a time. With your gun in the proper position the centipede can become an easy kill.

Make sure you have time and space enough to shoot twice if you decide to tackle a flea. You must have time to at least fire two rounds or the flea will get you before you get it.

At the higher levels, the upper screen can become nearly 100 percent full of mushrooms. In a case like this, move to one side (watching for spiders) and then keep shooting to clear a vertical path down which the centipede can travel and of course be killed.

Different Strokes: There is a contingent of Centipede players who prefer a different technique. They would rather attempt to eliminate all the mushrooms from the board in the first two rounds.

Starting from the left side they begin to clear the upper screen of all mushrooms making certain that they use only 4 shots per mushroom and that they do not hit the centipede until it arrives in the player zone.

When Board Two comes, they continue to clear the board. They make certain that there are always 5 mushrooms in the player zone in order to avoid fleas.

With the board clear, the game slows down to a snail's pace. The player then has a clear shot at the centipede and can take his time keeping the board clear and killing the centipede.

This technique can work but it requires extreme accuracy and above average reflexes and coordination. Try it. You might like it.

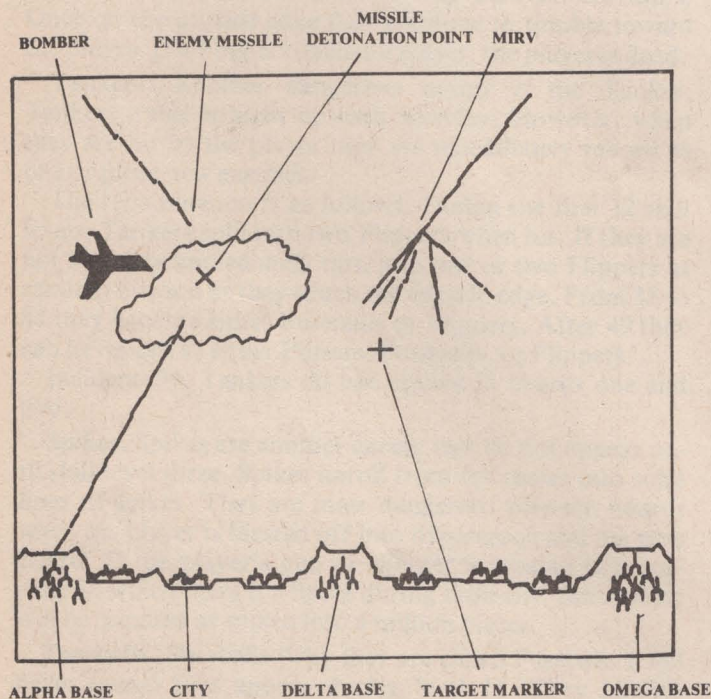
MISSILE COMMAND

THE GAME

Atari's Missile Command is one of the early classics of video. It is colorful, has good graphics and a wonderful ending. Unfortunately, Missile Command is also a victim of age. Good Missile Command players can last almost forever on one quarter. The result is that Missile Command has been pulled from many of the smaller arcades and most of the larger ones limit themselves to only one game. This is a shame because Missile Command is a great game for anyone just starting to get hooked on the video craze. On the positive side, Missile Command is available for home use in Atari's home machines.

The controls for Missile Command are extremely easy to use and understand. On the left hand side there are three firing buttons that can be operated very quickly with the three center fingers of the left hand. There are three missile bases in Missile Command and the three firing buttons correspond to the left, center, and right missile bases respectively. On the right hand side of the control panel is Atari's patented trak ball. Roll the ball with your right hand and a + mark rolls along the screen. The + mark is a target mark that determines where a missile will explode when fired.

On the Missile Command screen are from four to seven cities (six is the norm) and three missile bases, each with a bank of ten missiles. Once play begins, missiles begin to drop from the sky at the cities and missile pads below. It is the job of the player to destroy these enemy missiles before they land. The enemy is not limited to just missiles. There are also bombers, killer satellites, and smart missiles. The bombers and killer satellites are not much of a problem. They fly horizontally across the screen, one at a time, at what is actually a rather slow pace. However, if the killer satellites and bombers are not destroyed, they can and will drop missiles onto your cities.



The real menace is the smart bomb. Smart bombs do not drop in a straight direction. They can avoid your defensive missiles by zigzagging. Watch out for smart bombs. One other thing — the regular missiles can split into multiple warheads (MIRV's). Once the missile splits, each new missile behaves exactly like a regular missile.

Now that we have described the enemy, how about defenses. Your only weapons are the missiles. You have three missile bases: Alpha Base, Delta Base, and Omega Base. Each has 10 missiles. Where each missile lands is determined by the location of the target mark when you fire. The + mark is controlled by the trak ball. A special note: the missiles from Delta Base arrive at their destination the quickest. When in a hurry fire from Delta Base.

Each missile forms a cloud when it arrives and explodes. Any enemy that touches this cloud is destroyed. One of your missiles can thereby destroy several of the enemy via one large cloud. Remember — you do not have to hit an enemy bomber or missile head on. All you have to do is touch the enemy object with your cloud created by a missile that has exploded.

Missile Command is played in waves and rounds. At the end of each round the player's missile bases are restocked with a complete supply of missiles — 10 at each base. Normally there are two waves of enemy missiles dropping in each round. The number of total attacking missiles in each round is fixed so that if the player waits to let the missiles split into MIRV's in wave one, fewer missiles will show up in wave two. When the last enemy missile is launched a beep is heard to let the player know the end is coming.

The player gets to play a new round so long as he has cities to defend. Once all cities are destroyed, Armageddon comes with a very dramatic "The End".

Scoring: The player gets 25 points for every missile he knocks out. Destroyed bombers and killer satellites are worth 100 points. Smart bombs bring in 125 points.

At the end of the round, i.e., when all missiles have landed or have been destroyed, the player receives a bonus of 100 points for every city he has left plus 5 points for every missile. The player gets additional points for surviving past the second round. The points earned during a round (points for destroying enemy objects as well as bonus points) are doubled in rounds three and four. They are tripled in the fifth and sixth rounds, quadrupled in the seventh and eighth rounds, quintupled in the ninth and tenth rounds and sextupled in every round thereafter.

The last important scoring item is that the player gets one extra city for every 10,000 points that are scored. Operators can have this figure changed but 10,000, like 6 cities to begin a game, are the rule.

THE STRATEGY

Missile Command starts slow. Missiles in round one float slowly down. You can take your time, learn to use the trak ball, aim carefully, fire and survive. Unfortunately, the slow pace does not last long. By rounds three and four everything begins to happen quickly. In round six, the smart bombs begin to arrive. In the later rounds 13 and 14,

smart bombs can drop at what appears to be nearly the same time. Big scores however are not impossible.

When things are happening quickly, i.e., after round three, you cannot survive by aiming and shooting at individual enemy objects. Instead you have to use the cloud effect of your own detonating missiles to "build a wall".

The best way to build a wall is to start with the target at either the left or right side of the video screen. You then start to build a cloud all the way across the screen by firing a missile every inch and a half or so across the screen. Everything that touches the cloud wall will be destroyed.

Another important trick is to fire all your missiles from either Alpha Base or Omega Base first, saving Delta's missiles for last. If you are moving left to right build your wall using Alpha's missiles only. When you get to the right hand side immediately begin to build another wall in the opposite direction using Omega's missiles. Remember, Delta's missiles are the quickest. Save these to destroy any missiles that make it past your wall.

Smart bombs are always a problem. While they cannot avoid a well built wall, they can avoid an individual cloud. The surest way to nail a smart bomb is to build a cloud low

to the ground. This gives the smart bomb less room to maneuver and gives the player a greater chance of success.

In the latter rounds good players generally decide to defend only one city. This allows them to concentrate on building a smaller but more solid wall. Normally the bonus points achieved using this strategy will mean a new bonus city every round thereby allowing almost unlimited play. This strategy requires the dumping of all missiles from one side of the board or the other early. The dumping allows the early building of a defensive wall and also releases the player from any obligation to defend the now empty missile base. The player only has to defend half of the board during the second wave.

The last hint is to destroy missiles and bombers as early as possible. In the later rounds the MIRV's can be very troublesome. Get the missiles before they split and you will be better off. With respect to bombers and satellites, they drop their bombs close to the ground. Since that gives the player less reaction time, it is better to destroy them before they start to fire. Also by destroying them early others can appear in the same round. This can mean a lot of extra bonus points.

TEMPEST

THE GAME

Tempest has been called by many an unfair game. A player's score can depend very much on who played the machine 30 seconds earlier. Despite this complaint **Tempest** has been growing in popularity.

The reasons for **Tempest**'s success are its graphics and its ease. **Tempest** is truly three-dimensional. The game is played on 16 different screens shown below. Each board is a different skill level. When the player passes from one board to the next the board reacts as if it is blasting at warp speed into hyperspace. The blasting sensation is real. The graphics are very much three-dimensional.

Every level is tougher than the last. After board 16 the player returns to board one which is now called 17. Needless to say 17 is much tougher than one. The repeating continues until board 96. After 96, the boards come at the player in random order. All numbering of skill levels stops at 99.

There is only one object in **Tempest** — to stay alive. There are no cities, damsels, or spacemen to save — there are no objects to jump or dots to eat.

Staying alive is not easy. In **Tempest**, there is a wide assortment of alien objects that can attack and spell doom after but a few seconds.

To understand the enemy, a player must understand the board. Each board is divided into corridors or "sectors." It is from the center or narrow end of each board that the enemy attacks. For example in board one the enemy would come from the center starting as small dots and then travel down each sector to the outer rim or outside space. In board 11 the enemy would come from the top or narrow edge.

The Evasive Flipper. Flippers are the most dangerous of the enemy objects. They tumble along each sector towards the outside edge of each board. Unfortunately Flippers can move along a corridor and can flip between corridors. Once on the outside edge they continue to tumble toward the player. If a Flipper touches a player, the player is dead.

Tankers. Another dangerous enemy is the Tanker. Tankers travel straight up each corridor. However, when they are hit by the player they are immediately reborn as one or more new enemies.

The reincarnation is as follows. During the first 32 skill levels, Tankers split into two Flippers when hit. If they are not hit, they immediately turn into one or two Flippers at random as soon as they touch the outside edge. From 33 to 48 they become either Fuseballs or Flippers. After 49 they can be reborn as either Pulsars, Fuseballs, or Flippers.

Incidentally, Tankers do not appear in boards one and two.

Spikes. Spikes are another enemy that do not appear until skill level three. Spikes unroll from the center into solid lines or spikes. They are most dangerous between boards when the player is blasted off into hyperspace and the next board. If the player's gun or shooter is located in a corridor in which there is a Spike during blast-off, the shooter will be impaled or spiked into a million pieces.

Fuseballs. Fuseballs (why they are called Fuseballs I will never guess) first appear during level 11. They bounce within each sector from wall to wall until they reach the

rim. The player can not allow a Fuseball to reach the outside rim since once there, they can not be destroyed by the player's shooter. They can only be destroyed by the player's shooter. They can only be super-zapped. Since the number of super-zaps is not unlimited, a Fuseball on the outer rim can be very dangerous.

Pulsars. These little devils arrive during level 17. Pulsars do exactly what they should do — they pulse. As soon as they pulse, the outer rim of the sector they are in disappears. If the player is on that spot, he dies. Pulsars travel back and forth along each corridor as well as between corridors.

Controls and Defense. The control panel for **Tempest** is simple to use and easy to learn. On the left-hand side there are two buttons — a fire button and a super-zapper button. The firing button sends bullets down the corridor in which the player's shooter is located. Most good players keep the firing button down at all times unless they have to time a very critical shot such as to kill a Flipper as it is about to strike on the outer edge.

The super-zapper on the other hand is normally kept in reserve for when the board is loaded with enemy objects that can not be killed with individual bullets. A super-zap clears all corridors and rims of enemy objects. The super-zap can technically be used twice while playing a particular skill level. However, it can be trusted only on the first try. On the second shot it may or may not kill everything on the board. It is worth trying however, since most times the second super-zap at least gets the enemies that are closest to the shooter.

The player's gun or shooter is controlled by a knob on the upper right on the control panel. The knob can be turned right or left. It causes the shooter to move along the outer rim from sector to sector. The shooter can not travel along a corridor. It can only move along the edge of each board.

A player gets from two to five shooters at the beginning of the game depending upon whether the machine owner is reasonable or a rip-off artist. Also the player gets a new shooter for each 20,000 points. This can also be set at any level between 10,000 and 70,000 points.

Scoring. Flippers when destroyed are worth 150 points, Tankers 100, Spikes 50, Fuseballs 250, 500, or 750, and Pulsars 200.

The player also gets a bonus for completing a board. The bonuses are as follows: 1-0; 3-6,000; 5-16,000; 7-32,000. The bonuses keep improving with each level. At level 26 for example, the bonus is 172,000 points.

The bonus system is where the controversy over **Tempest** lies. At the beginning of the game a player can choose to start at the odd levels between one and nine. However, if a player finishes a game at a level higher than nine, he can start at his last high level by popping in a quarter within 30 seconds of the game's end. Since a player can get 172,000 points by say, completing a high level such as level 26, there are definite advantages to starting high and going for broke when score is important. This is the reason why many people complain that high scores in **Tempest** are earned with other people's quarters. The other people are

the previous players who have built the machine up to high levels and thereby prime the machine before the player commences.

The Strategy: The first element of strategy is to make certain that you move your shooter quickly and try to destroy all enemy objects early when they are but small dots travelling in the narrow part of the corridors.

Second — keep your finger firing at all times. This is true unless a Flipper or other object reaches the rim. To kill a Flipper you have to time a perfect shot. This takes practice. Kill a Flipper by firing just as it flips into the sector that touches the shooter's sector. It is possible to kill two Flippers at once when they are tumbling from two sides in a squeeze play.

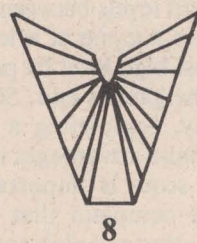
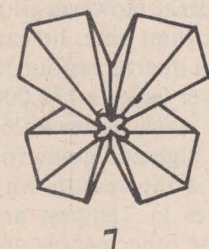
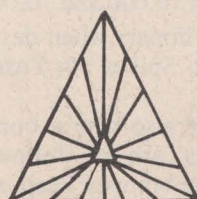
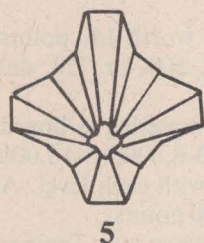
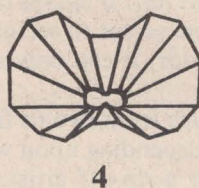
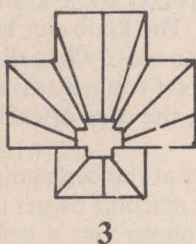
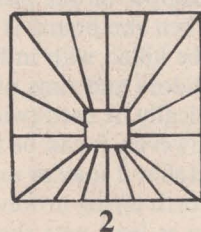
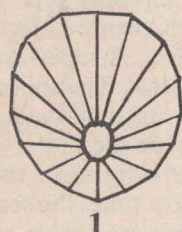
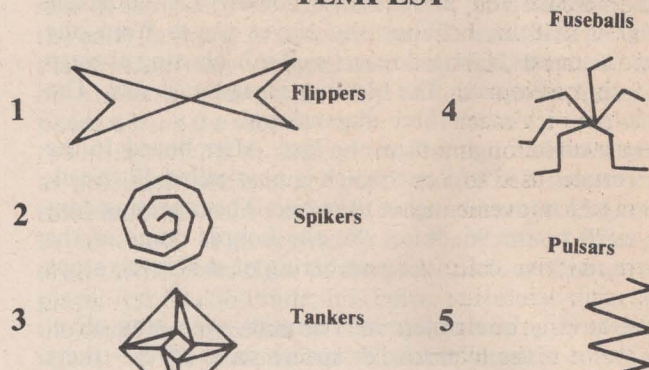
Next, make sure that the shooter is not in a sector where there is a Spike when a round ends. This would mean certain death.

Spikes are so prevalent in the latter rounds that a fourth bit of strategy comes into play for the higher levels. At the higher levels the player should pick up an edge or a small

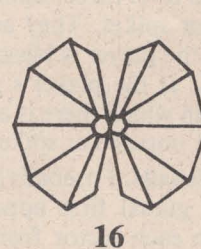
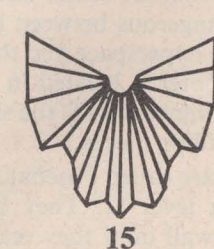
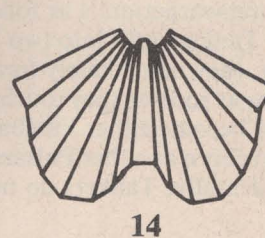
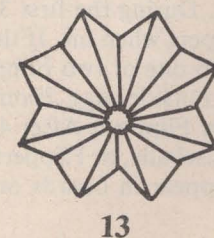
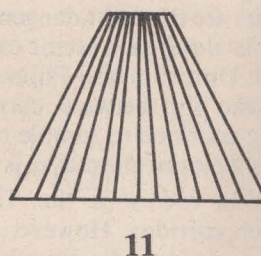
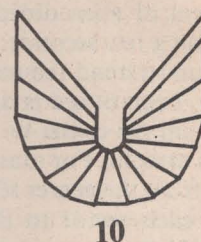
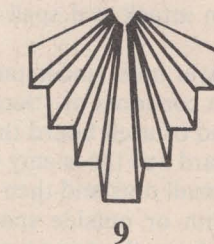
group of contiguous sectors to defend. By concentrating he can keep these clear of Spikes and other objects. Flippers on the rim can be killed by timed shots or super-zapping.

This brings us to the last bit of strategy. Save the super-zapper until you really need it. It works, so do not waste it.

THE ENEMIES OF TEMPEST



THE MANY BOARDS OF TEMPEST



ASTEROIDS

THE GAME

Once the most popular game on the scene, Asteroids remains an old favorite with arcadians. Although it is a difficult game for the novice to get the hang of, after a moderate expertise has been developed it is easy to make the jump to expert.

In Asteroids you pilot a little triangular rocket ship through a field of, believe it or not, asteroids. It's not as easy as it sounds. First of all, there is no gravity, and very little drag on your ship. This means that your ship is in free-fall. Which means that if you want to stop, you have to reverse direction and thrust the opposite way. This takes a while to get used to, and it takes longer still to be able to make precise movements necessary to become an Asteroids expert.

There are five control buttons: left and right rotation buttons on the left side of the control panel, and thrust and fire buttons on the right side of the panel. In between and lower down is the hyperspace button, which for practical purposes can be ignored.

On most machines you are given three ships per game, although this is adjustable. Your ship will materialize in the center of the screen as soon as there is nothing in the immediate area. Around the edges of the screen will appear four irregularly shaped asteroids, moving in random paths through the screen. When an object leaves one side of the screen it reappears on the other side as if the flat screen were really a sphere. Shoot the asteroids for points; a big asteroid is worth 20 points when hit and will break up into two medium asteroids which move off in random directions. These asteroids are worth 50 points, and when hit they, too, break up into two still smaller asteroids. The small asteroids are worth 100 points and disappear completely when hit. The first screen contains four large asteroids. When they are all destroyed, you are rewarded with a new screen with six asteroids. The pattern of increasing the number of asteroids continues up until the seventh screen, which starts with sixteen asteroids.

Complicating your task are the UFOs, or simply the "little ships," as 'Stroids players call them. There are two versions of the UFO, large and small. Large ships appear more often early in the game and move across the screen once before disappearing. They will fire single shots at random, and their presence is announced by a siren-like noise. Small UFOs behave similarly, but they are programmed to fire their shots within a few degrees of your ship, or at remaining asteroids. After a certain point in the game (usually 40,000 points) the small UFOs become more accurate. Large UFOs are worth 250 points and small UFOs are worth 1000 points.

THE STRATEGY

The first thing to master at Asteroids is how to fly. This will require the investment of a few quarters, as it can not be taught. The second thing to master is blowing up asteroids. You can have four shots on the screen at one time. If you miss your target your shots will travel about three-quarters of the way across the screen before evaporating. This takes time, and time is what you don't have, because after a while the UFOs will begin to come out shooting,

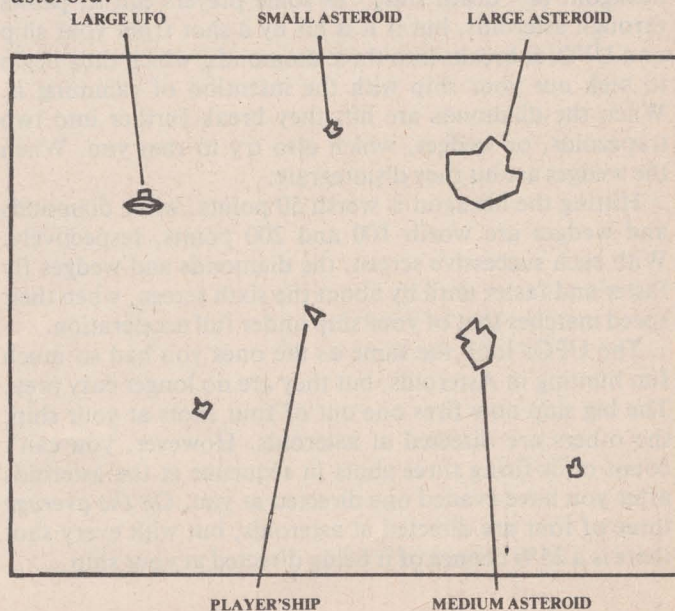
and if you are spending all your time dodging asteroids at that point, your goose is cooked. So you want to destroy the asteroids as quickly as possible, which means developing the technique of rapid-fire.

Rapid-fire doesn't mean simply hitting the fire button constantly. It means learning to fire quickly in bursts of four. When shooting asteroids, this basic technique can be improved upon. Maneuver to within a couple of inches behind one and try this: fire rapidly *and* constantly, but while you are firing, alternately tap the left and right rotation buttons *very* lightly. This will disperse your shots over a slightly wider path and will catch most of the smaller asteroids that would otherwise escape in a different direction after the first asteroid had been hit.

When the screen begins to clear, save a slow-moving medium or a couple of slow-moving small asteroids. Now to go "hunting."

"Hunting" involves shooting the UFOs instead of the asteroids. It takes advantage of the fact that, although the little ships will track you and fire at you, they are unable to "see" through the edges of the screen. Like yours, their shots will only reach about three-quarters of the way across the screen. This means that you can wait at the edges of the screen, waiting for a UFO to appear. If it appears on the opposite side of the screen, shoot "through" the screen before it comes in range of you. If you miss, simply tap the thrust button and turn around as you float across the edge of the screen and reappear on the other side, and try again. If the ship appears on your side of the screen, you have about half a second before it fires its first shot. Don't miss.

An alternate method of hunting is somewhat less precise, but almost as effective, and is used by many experts. Leaving only one asteroid in the field, accelerate your ship vertically through the center of the screen. As long as you are moving at top speed, you will be moving too fast for the machine to calculate where you are going to be. The little ship will in effect be firing at random. As it crosses the screen, you can spray it with shots as you pass until you finally hit it. Be careful not to run into your remaining asteroid!



ASTEROIDS DELUXE

THE GAME

Asteroids Deluxe was Atari's first follow-up to Asteroids. It was never as successful as original Asteroids, probably because it is much harder. But to some, the added features which make Deluxe more difficult only add to the challenge of the game.

The first thing you'll notice about Asteroids Deluxe is that the screen is different than Asteroids. Rather than playing directly on a black-and-white TV screen, you play on a reflection of the actual screen. The playing screen is a special two-way glass which allows you to see the images from the TV screen and at the same time see through the playing screen. This has one practical effect on your game: the edges of the screen are less well-defined than those in Asteroids, making it harder to use them effectively.

The controls for Asteroids Deluxe are similar to those in Asteroids with one crucial difference. The Hyperspace button has been replaced by a Shield button. The shield is a force-field which will protect your ship from collision with asteroids or enemy ships and missiles. You only have a few seconds of shield per ship, however, so only use it when necessary. You can maneuver and thrust while enveloped by the shield, but you can not fire. If you run into a UFO while your shield is on you will destroy it, but if you bump into an asteroid or death star with it on you will only bounce off. The shield is replenished with each new ship.

Maneuvering the ship is done in the same fashion as in Asteroids, although you will find that your ship responds more sluggishly relative to the other objects in the game than it did in the original version. Also, because your ship is shaped differently, you can no longer avoid oncoming shots by rotating around them as they pass.

The asteroids in Deluxe are somewhat different. They rotate as they move, and the first screen contains six asteroids instead of four. The most that will ever appear at the beginning of the screen is lower in Deluxe at nine.

The scoring in Asteroids Deluxe is the same as that of the original version, except that new enemy ships have been added to assist the UFOs. These first appear as a hexagon, which drifts harmlessly through space, first appearing when there are five asteroids left on the screen. The hexagon, or "death star," as some players call it, passes through asteroids, but if it is hit by a shot from your ship or a UFO, it breaks into three diamonds, which then begin to seek out your ship with the intention of ramming it. When the diamonds are hit, they break further into two trapezoids, or wedges, which also try to ram you. When the wedges are hit they disintegrate.

Hitting the hexagon is worth 50 points, while diamonds and wedges are worth 100 and 200 points, respectively. With each successive screen, the diamonds and wedges fly faster and faster until by about the sixth screen, when their speed matches that of your ship under full acceleration.

The UFOs look the same as the ones you had so much fun hunting in Asteroids, but they are no longer easy prey. The big ship now fires one out of four shots at your ship; the others are directed at asteroids. However, you can't count on it firing three shots in sequence at the asteroids after you have evaded one directed at you. *On the average* three of four are directed at asteroids, but with every shot there is a 25% chance of it being directed at your ship.

The little ship shoots at you two-thirds of the time, and at asteroids one-third of the time. Accuracy has been increased, but worst of all, both the big and little ships can now "see" through the edges of the screen. This, along with their ability to shoot at the remaining asteroids, makes "hunting" in the original sense impossible.

It is also impossible to "hunt" by playing run-and-gun. The microprocessor in Asteroids Deluxe can calculate your position and trajectory even when your ship is moving at top speed. The little ship makes short work of run-and-gunners.

Nonetheless, there is a way to "hunt" in Asteroids Deluxe, although in general, it only works on the first two or three screens. Instead of hunting UFOs, you hunt death stars. In the first few screens, these move slowly enough to be easily outmaneuvered and destroyed. When one entire death star has been destroyed, it will immediately be replaced by another as long as there are at least two and no more than five asteroids of any type left on the screen.

THE STRATEGY

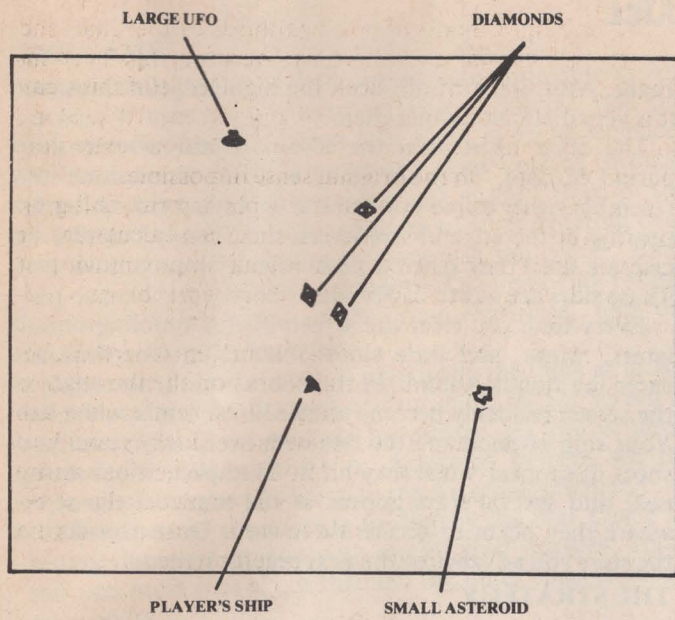
The strategy on the first screen, is to quickly destroy one entire large asteroid and all its pieces, without hitting another asteroid. There will then be five objects left on the screen, and a hexagonal death star will appear, which you should destroy as quickly as possible. Destroying a death star and all its components yields a total of 950 points. If you inadvertently hit a large asteroid while you are shooting the death star, there will again be too many objects on the screen, so after the death star has been destroyed you must again clear the screen until there are five objects left. You can repeat this process as long as there are two asteroids left, but when there is only one left, nothing else will appear except the deadly UFOs.

UFOs can be hunted from the center of the screen by judicious use of the shield, but it is a risky business, and eventually your shield will run out, leading you naked during the next screen. Which means you probably won't live through the next screen. At least, if you die, your shield will be recharged for your next ship. The lesson is, use your shield as sparingly and defensively as possible. It is often impossible to escape the little ship without it, especially if you are caught with a lot of asteroids still on the screen.

The death star hunting technique can only do so much for your score. With each successive screen, the death stars get faster and faster, until by the fourth screen, even expert players begin to leave it for last if possible. Often, this is not possible, as a big or small UFO will appear and shoot the death star, releasing the deadly diamonds. The only strategy for the later screens is to try to destroy everything as quickly as possible, saving the death stars for last so that they won't reappear.

Most Asteroids Deluxe games are set to give you an extra ship every 15,000 points, with three ships awarded originally. There is one other limiting factor: you can never have more than ten ships built up in reserve at one time.

Asteroids Deluxe "turns over" at 999,990. However, no one to my knowledge has ever broken 300,000. Also, the three top scores are recorded in permanent memory which is not erased when the machine is turned off. A taste of immortality for the true 'Stroids gods.



ASTEROIDS DELUXE

SPACE DUEL

THE GAME

Atari's Space Duel is the latest in a series of Asteroids spin-offs. The idea of the game is very similar to that of its ancestor: shoot all of the objects that float through the screen before any of them ram or shoot you. But there are some improvements and additions to this latest version.

The most obvious of these is the addition of color graphics. Where Asteroids and Asteroids Deluxe players had to be satisfied with plain black-and-white or bluish lines, Space Duel players can blow up floating space debris and enemy ships made up of innumerable hues. The screen is a black-out screen similar to the type used in Stargate. It works on the same curved-space principle as the one in Asteroids; things that float off the edge of the screen reappear on the opposite edge, retaining the same momentum and direction.

Another change is that the game appears to use three dimensions. This is only partially true. While some of the floating objects are represented in three dimensions, the appearance has nothing to do with the mechanics of the game. It is played in the same basic way as Asteroids.

Actually, Space Duel is closer to Asteroids Deluxe. The controls are almost exactly the same, the only difference being that the shield button is located within easy thumb reach of the thrust and fire buttons, rather than in the center of the control panel.

Also, of course, there are two sets of controls. Space Duel can be played by two people at once in either of two modes. The modes are chosen by a select button which moves a blinking light to the next choice each time it is pushed. The standard game is identical to Asteroids Deluxe except for the differences already described. The other mode has two ships linked by a straight yellow line. In the two-player game the ships can rotate and fire independently, but only the red ship thrusts. In the one-player game the ships rotate and fire simultaneously, with the red ship alone still providing all of the thrust.

The large objects on the screen function the same way as asteroids do; they split into two smaller objects and the smaller into two still smaller ones when hit by a missile. The smallest ones disintegrate completely. Two more objects are added with each new screen, and the parts score exactly as in Asteroids.

Small blue crosses also float through the field. These are space mines, and they can not be destroyed. When hit, they change color and their progress is temporarily stopped. If they are not hit again, they soon resume their course. If they are hit six times in succession, they disappear and reappear on the other side of the screen. This is worth 110 points, but as the mines are hard to hit and indestructable, it is not a good strategy for increasing your score. The first screen contains four mines; thereafter the number is always five.

There are little ships in Space Duel, but they are only worth 300 points. There are no big ships, and none of the ships can "see" through the sides of the screens. But they fly more erratic courses than do the ships in Asteroids or Deluxe, and can change speed during the middle of a

flight. Also, since it is difficult to see the edge of the screen it is very difficult to hunt them.

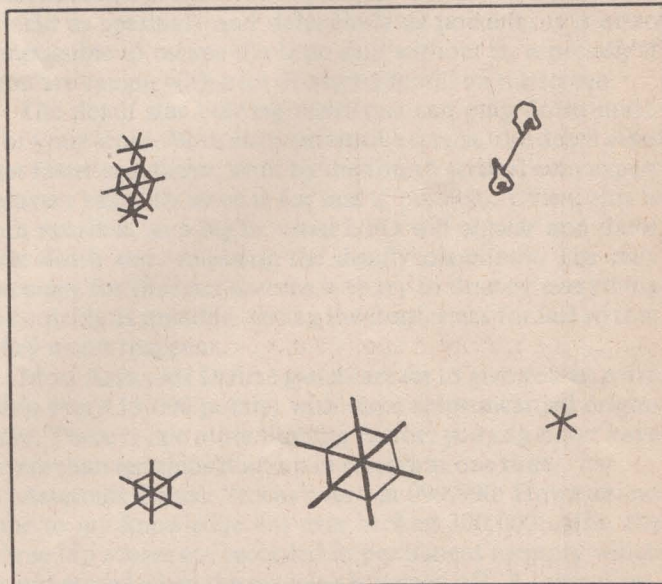
The other objects on the screen appear after a short period of time. They are white and two-dimensional and resemble either a five-pointed star or an asterisk. After appearing at the edge of the screen they slowly begin to accelerate until they reach a peak velocity that is quite fast. These stars are worth 250 points.

Every time you clear the screen of the tumbling objects (stars, mines, and little ships don't count for this) you enter the Bonus Round. In the bonus round, the edges of the screen suddenly become marked by a bright white line. Your ship bounces off the line with no ill effect and your shots disappear when they hit it. The space mines disappear and several stars appear at the edges of the screen where they begin to accelerate inward. Once you destroy the stars you advance to the next regular screen.

THE STRATEGY

There is no real strategy for excelling in Space Duel that doesn't apply generally to Asteroids or Asteroids Deluxe, except that hunting is no longer very profitable. Choosing between the independent ship games or the combined ship games is a matter of personal taste; single ships are much more maneuverable than dual ones, but the combined ships offer double the forepower.

Sometimes two ships will attack at once. Although they sometimes operate independently of each other, usually they work in tandem. When this happens, they enter from the same side of the screen, one an inch and a half or so above the other. They race across the screen very quickly in a straight line, trading shots back and forth between each other. If you are caught in the middle, the only thing to do is use your shield until they pass. But eventually you will have to shoot one of the ships, because they will keep reappearing, each time a little farther apart, until one has been destroyed. When that happens, the other continues on as a normal little ship.



STAR CASTLE

THE GAME

Star Castle is a game built on the same principle as Asteroids. It uses the same curved space principle, and the controls are identical except that there is no hyperspace. But there are no asteroids or enemy ships floating through space. Instead there is a single "star castle" fixed in the middle of the screen. It is made up of three rotating concentric rings, and contains a cannon in the center. Each ring is made up of twelve segments. The inner ring rotates counter-clockwise, the middle ring clockwise, and the outer ring counter-clockwise.

Maneuvering and firing is practically the same as in Asteroids, except that instead of four shots on the screen at any one time, you now only have three. (If you've never played either Star Castle or Asteroids before, see the "How to Maneuver" section in the Asteroids chapter.)

The object of the game is to destroy the Star Castle by hitting the inner cannon with one of your missiles. To do this you must first shoot through the outer rings to create an opening.

The Star Castle isn't going to make that easy for you. First, it takes two hits on a segment to destroy it; the first hit only makes the segment glow brighter. Second, once you have cleared an opening, the cannon, which tracks your ship, starts firing fireballs at you with a high degree of accuracy. And third, the Star Castle sends out little sparks which follow you around. If one touches your ship — boom! You lose it.

Destroying an outer ring segment is worth ten points, a middle segment yields 20 points, and an inner segment nets you 30 points. Destroying the cannon is worth 2000 points and, more importantly, a bonus ship. There is no limit to the number of bonus ships you can have. So once you have mastered Star Castle you can play for hours. The sparks can be destroyed by hitting them with a missile, but they are worthless. Whenever possible, run from the sparks and save your shots for the Star Castle.

The only way you can lose a ship is by getting hit by either the cannon's fireballs or by colliding with a spark. If you run into the Star Castle itself, you will have to start attacking the rings all over with only a few points to show for it.

With each new board, the castle's defenses speed up. The sparks fly faster and attack in greater numbers. The rings rotate faster. And the cannon tracks your position faster. Eventually (usually at about the 80,000 point level) the cannon flips into position almost instantaneously. But at around 180,000 points, the defenses slow down, falling back to the level they were at when the game started. They pick up speed more rapidly after that, however, again attaining peak velocity at about 210,000 points.

If you are lucky enough to have a friend who is an expert player, you can use this slowdown spot to your advantage. Get him/her to play until the defenses slow. Now you take over with all those extra ships in reserve. This is an inexpensive way to master the game!

THE STRATEGY

Basic strategy is fairly simple. Try to destroy the cannon as quickly as possible. To do this you must be careful not

to completely destroy any of the circles, or they will reform.

Mainly, you must keep moving. In the early stages of the game, the castle's defenses move slowly enough so that as long as you keep moving you will probably survive. Don't waste your time shooting sparks. They are worth no points and are hard to hit. Shoot them only as a last resort defensive measure.

Generally, your best bet is to fly away from the sparks and keep shooting at the castle, being careful not to fully obliterate a ring. When you have created an opening to the castle, use extra caution. The cannon will fire at you any time you are lined up with it — so keep moving. Fire every time the opening comes around and eventually one of your shots will land home. You will have a bonus ship and 2000 points.

Note that simply destroying the rings is *not* the way to excel in Star Castle. They are worth too little and no matter how many you destroy, you will not get a bonus ship unless you hit the cannon. Also, the longer time you take to kill the cannon, the more aggressive the little sparks will become.

There are two more advanced strategies which will work once you have learned the basics. Both are in a way similar to the "hunting" strategy employed in Asteroids. The trick is the same: The Star Castle can not "see" through the edges of the screen. Thus, if you shot at it from one edge of the screen, and then quickly turn and jet through the edge to the other side, you will be able to get off three more shots before the cannon has had time to turn all the way around to face you. You can keep using this run-and-gun strategy up until the point where the cannon begins to compensate for your position almost instantaneously. Then it is time to employ the fly-by.

The run-and-gun works against the sparks, too. In general they will not follow you across the edge of the screen, but instead will turn when you "disappear" to the other side and will fly the long way, *across* the screen, towards you. But this is not an infallible strategy. Occasionally a spark will follow you across the border of the screen. Watch out for this. In cases like this it is sometimes necessary to shoot the spark rather than running from it.

As long as you cross the border in time, the cannon's fireball will disappear completely once it reaches the edge of the screen. But the object of the run-and-gun strategy is to prevent the cannon from lining up with you at all. If it does get a shot off, your best bet is to dodge to one side rather than try to get back across the border in time.

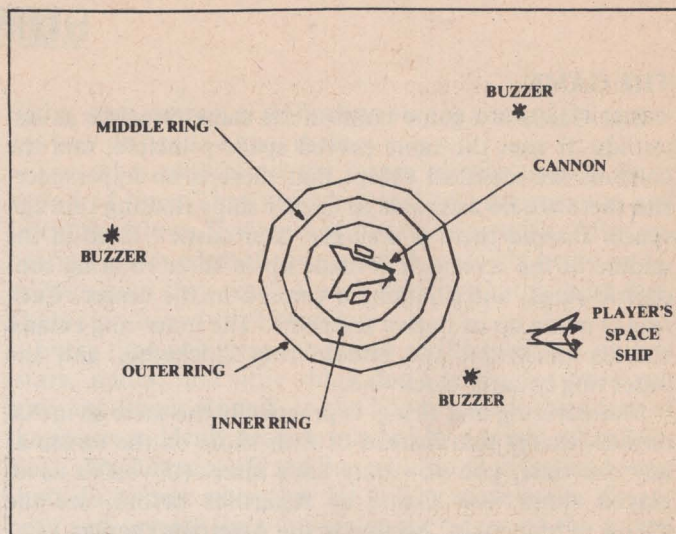
Eventually the cannon will track you too quickly for the run-and-gun to be effective. But if you have mastered the run-and-gun you are probably ready for a more advanced strategy anyway. This, too, is based on an Asteroids hunting technique.

To run the fly-by, position your ship in one corner of the screen and then thrust in a straight diagonal line. (See fig. 2.) If you are in the correct position, you will be reappearing in alternately the same position on the opposite sides of the screen. Keep moving quickly enough and the cannon will be unable to hit you even when it is able to track you at

top speed. The main thing you have to worry about defensively is the possibility of a stray spark flying into your path.

The trick now is to stop thrusting, turn, and shoot at the Star Castle while moving at a high velocity. You must let off the thrust button to do this or you will go off course. After firing, turn back in line with your direction of flight and use the thrust button to pick up speed again. That's really all there is to the fly-by strategy. Once you learn to compensate for your speed and avoid destroying the outer ring, you will be practically invincible.

STAR CASTLE



STARGATE

Stargate is Williams' follow-up to Defender. It is basically a more complicated version of the same game, with more aliens, a few added features and better graphics.

THE GAME

The controls are exactly the same as in Defender, except that below and to the left of the Smart Bomb button is a new button labeled Inviso. The Inviso is an added feature which makes your ship both invisible and invulnerable. You can still fire your laser and smart bomb while using Inviso. Inviso is limited, and the time remaining is shown as a red line under the area showing Smart Bombs remaining.

Another added feature is the Stargate Warp. Stargates are represented by rectangular purple spirals. When your ship enters the Stargate it is transported to a place where a Lander is kidnapping one of your men. If this is not taking place anywhere, you will be relocated to the far side of the planet. But if you enter the Stargate while carrying four or more men, you will warp ahead three waves. When doing this, you get a bonus 2000 points for every man remaining. You can keep warping ahead until you reach wave 10.

Another new feature is the Pod Intersection indicator, located at the bottom of the Scanner. When the indicator reaches zero it means that all the Pods have coalesced in one spot. This is a good time to smart-bomb them.

All the old aliens from Defender are back, along with eight new types. Firebombers are multi-colored, spinning globes which shoot out flashing red and yellow fireballs. Firebombers are worth 250 points while fireballs are worth 100.

Yllabian Space Guppies are devilish little aliens that travel in swarms (or schools) and fire long white needles. They move quickly, but not as quickly as your ship, and come in blue, purple, pink, and white.

Dynamos look like red and white checkered diamonds. They move slowly but are dangerous because they fire Space Hums at your ship. Space Hums look like miniature Dynamos, and they track your ship wherever it goes with an intention to ram. Dynamos are worth 200 points while Space Hums are worth 100.

Phreds and Big Reds behave much like Dynamos except that they fly somewhat faster. They look like yellow or red rectangles with a bite taken out of their middle. Phreds and Big Reds shoot out Munchies, which are smaller versions of their parents. The flow-flying Phreds and Big Reds are worth 200 points, while the faster Munchies are worth only 50 points.

You get a new set of men after every five waves, and a new ship, smart bomb, and more Inviso time after every 10,000 points, although as in Defender, this setting is variable. Stargate "turns over" at ten million.

The progression of the game is different than in Defender. All changes are made with an eye towards making life more difficult for your spaceship. The planet still explodes after all your men have been eaten, but every tenth wave beginning with wave five, you must face a challenge called the Yllabian Dogfight, where you start without a planet. In the Yllabian Dogfight you face, as you might suspect, hordes of Yllabian Space Guppies, as well as a few

Dynamos and Swarmers. If you survive the Dogfight you receive a 2500 point bonus.

Even more dangerous than the Yllabian Dogfight is the Firebomber Showdown, which occurs every tenth wave beginning with wave ten. There are numerous Firebombers and six Pods in every Showdown.

THE STRATEGY

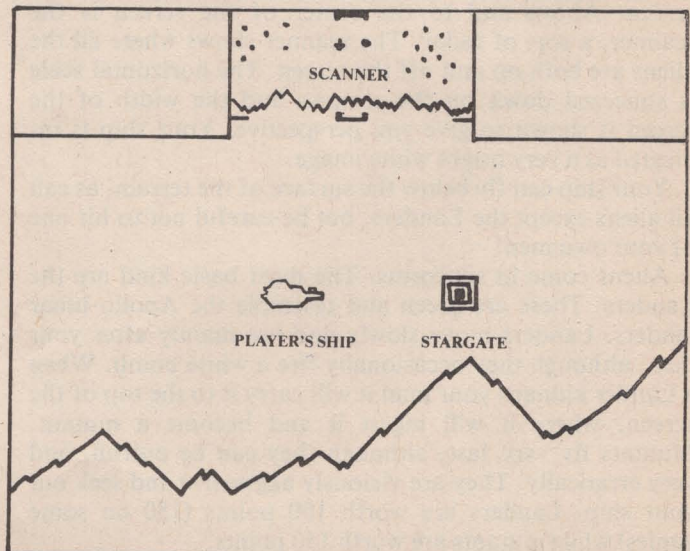
In the early waves, you should try to warp ahead by picking up four or more men and entering the Stargate. You get an extra 2000 points for every man you carry beyond three.

Firebombers are best taken out by getting above them and firing rapidly at them as you move down. You must fire rapidly, because they will use Fireballs to block your shots.

Yllabian Space Guppies can be treated in essentially the same way as Swarmers. Anticipate where they will enter the screen and spray the area with shots as they appear. In the Yllabian Dogfight there are usually so many that it is necessary to use Inviso while attacking them.

Dynamos, Phreds, and Big Reds are relatively easy to kill as long as you shoot them from a distance. Don't get too close or you will be unable to dodge the Space Hums or Munchies that they shoot at you. You will have to shoot any Munchies that are fired at you because they will follow you around, creating a tight spot whenever you encounter another alien.

To survive the Showdown you must make good use of your Smart Bombs. Watch the Pod Intersection indicator. When it reaches zero, smart bomb all the Pods. Now if you thrust forward you will find a large group of Firebombers. Smart Bomb these also. The only things left will be a few individuals and a Swarmer or two, and these can all be taken out individually with your laser.



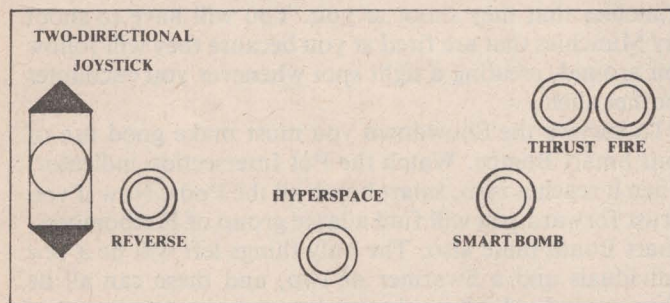
DEFENDER

Defender is a difficult and complex space game from Williams. Its difficulty hasn't made it any less popular among hard-core arcade goers, who seem to relish the challenge.

THE GAME

The scenario is pretty straightforward. You fly a spaceship above a planet where ten of your men are stranded. Aliens come along and try to eat your men. If you get in their way, they try to kill you. If all of your men are eaten, the planet blows up and you must face a horde of aggressive aliens in deep space.

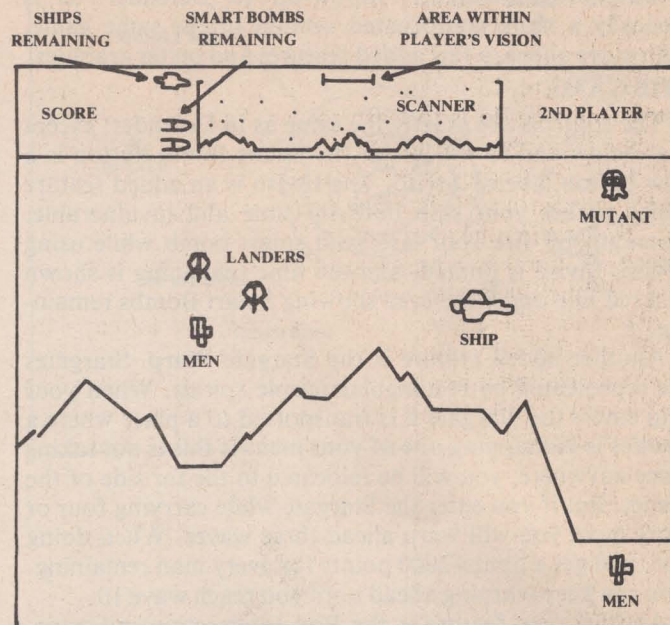
Your spaceship has some pretty amazing capabilities, and to operate it you need a host of controls. A two directional joystick moves the ship up or down, and a thrust button provides acceleration. Another button flips your spaceship around, allowing you to reverse direction. A fire button operates a rapid-fire nose laser, and you are also equipped with a smart bomb. Tap the smart bomb button and you blow up everything on the screen except you and your men. If all else fails, you can use the hyper button to materialize you elsewhere in possibly better circumstances. Like the hyperspace on *Astroids*, hyper has a certain built-in probability of destruction on re-entry, so use it sparingly.



The player's score and number of ships and smart bombs remaining are shown at the upper left, above the screen. Above and to the center of the screen is the scanner, a sort of radar. The scanner shows where all the aliens are both on and off the screen. The horizontal scale is squeezed down on the scanner and the width of the screen is shown to give you perspective. Your ship is indicated as a very bright white image.

Your ship can fly below the surface of the terrain, as can all aliens except the Landers, but be careful not to hit one of your own men!

Aliens come in six forms. The most basic kind are the Landers. These are green and resemble the Apollo lunar landers. Landers move slowly and are mainly after your men, although they occasionally fire a white bomb. When a Lander kidnaps your man it will carry it to the top of the screen, where it will ingest it and become a mutant. Mutants fly very fast, although they can be outrun, and very erratically. They are viciously aggressive and seek out your ship. Landers are worth 100 points (150 on some games) while mutants are worth 150 points.



You can rescue your man while he is being kidnapped by shooting the Lander with your laser or by smart-bombing it. If you catch your man in mid-air, you get 500 points, and if you drop him off on the planet after catching him you get another 500. If the man is more than 2 inches from the surface when you shoot the Lander, he will explode when he hits the planet. If he falls from less than 2 inches he will be safe and you get another 250 points when he lands.

Baiters are very dangerous rectangular green ships. They can fly faster than your ship and fire white missiles. They appear after a certain amount of time on each "wave." (Each new set of aliens is referred to as an "attack wave.") Baiters can leave the screen at the top and reappear at the bottom. They are worth 200 points.

Bombers look like two overlapping blue and purple squares. They move slowly in a diagonal path across the screen, leaving x-shaped bombs in their wake. Bombers are worth 250 points.

Pods are large red and blue asterisks. They move vertically up and down the screen. When hit they break up into a horde of Swarms, small red objects that move quickly and fire shots and basically do just what their name implies: swarm. Pods are worth 1000 points; Swarms are worth 150 points each.

After completing a wave, you receive a bonus for the number of remaining men. On the first wave each man is worth 100 extra points, on the second 200, and so on up to the fifth wave. All waves after the fifth score 500 points bonus for each remaining man. Also, you get a new planet with a new set of men after the fourth wave and every fifth wave thereafter, although this can vary between individual games. The machine turns over at one million.

THE STRATEGY

Strategy in Defender is really pretty simple — just blast everything before it blasts you. Remember to keep firing constantly and quickly (but don't pound the machine). Keep moving primarily in one direction, but don't thrust so fast that you lose control of the ship. The most important thing to do is to learn to use the radar screen so you can anticipate the location of oncoming aliens and blast them just as they enter the screen. By using the radar screen you can also locate Landers kidnapping men and thrust to them in time to save them.

Killing Landers is no great problem since they move so slowly. It should be the first order of business, since the fewer Landers there are, the fewer men will be kidnapped and the fewer deadly mutants you will have to face.

Mutants can be killed either by getting above them and coming down while firing rapidly, or by getting ahead of

them, reversing, and then blasting them. The latter strategy works well for bombers, too. Be careful not to fly behind bombers or you will run into their deadly bombs.

Baiters are the most dangerous since they move faster than your ship. When a Baiter approaches on the scanner, turn to face it and go up. When it appears, move downwards, firing rapidly.

Pods are really more deadly than Baiters, because Pods break up into Swarms when they are blasted. But you can use your smart bombs on the Pods and kill most of the Swarms at the same time. Try to save your smart bombs to use on Pods that are bunched up.

Swarms can only fire ahead of themselves, so it is simple enough to use reverse to get behind them and blast them. But a horde of Swarms may be too much to face with just a laser. If there are too many Swarms, smart bomb them.

BATTLE ZONE

THE GAME

Battlezone is a very advanced tank game manufactured by Atari. You drive a tank through a field where you face various enemies one at a time. The object is to shoot as many enemy tanks, missiles, and saucers as possible before they destroy you. Most games give you three tank lives per quarter.

The uniqueness of Battlezone is in the way the playing field is represented. The screen represents three dimensions rather than the two common in most video games. You're sitting on a flat plain with mountains in the distance and various transparent obstacles in the foreground. You view the screen as if you are sitting *inside* a tank looking out through a forward windshield. Accordingly, your field of view is restricted to about 40 degrees. However, you have various enemies which can shoot you even if you can't see them. They can come up from behind, just as if you were in a real tank. In fact, Battlezone is so realistic that the U.S. Army has bought hundreds for use in training tank gunners.

Objects are represented on the screen by linear green graphics on a black background. When an enemy comes near the center of the screen, a target cross-hairs system locks on to help you aim your shot.

You can detect the enemies you can't see by using a small red radar screen located above the view-screen. Enemy tanks and missiles show up as blips on the screen. You are in the center and your field of view is marked off as a pie-shaped wedge to give you better perspective. When an enemy comes within range, a panel beside the radar screen will light up informing you of that fact and telling you in which direction it lies.

Maneuvering your tanks seems rather complicated, and usually takes a few quarters to master. Your controls consist of two forwards-backwards joysticks, with a fire button located on top of the right joystick. Each stick controls one tank tread. To move straight forward, simply push both joysticks forward. To move backward, pull both towards you. To turn left, push the right joystick forward and leave the left one in the center position. To turn right, push the left joystick forward and leave the right one in the center position. These last two maneuvers are for going around corners; if you simply want to spin in place without moving, push all the way forward on one joystick while pulling all the way back on the other. To turn while in reverse, pull back on the stick in the opposite direction of the way you want to turn while leaving the other joystick in the center; this is essentially the same process as that for going around corners except you pull back on one stick rather than pushing forward.

To destroy your enemies you must hit them with one of your shells. You can have only one shell on the screen at one time. As soon as it explodes, you can fire again, but if you hit nothing with your shell it must travel all the way to the horizon before you can fire again. This takes a second or two, an important fact to remember. You must make every shot count!

Your velocity is added to that of your shell, which means that if you fire while turning, your shell will appear to have

a curved trajectory.

There are four types of enemies. Regular tanks move somewhat more slowly than your tank and can be outmaneuvered and outrun. They can destroy your tank only by firing shells; running into them does nothing to either you or them except impede your respective paths. Regular tanks are worth 1000 points when destroyed. They materialize out of nowhere. If they are not within your field of view you are still warned by the radar screen and by a short series of alarm bleeps.

The second type of enemy is the cruise missile. They appear above the horizon and land about half-way between you and the horizon. Cruise missiles follow an irregular path towards you, making a humming noise which grows louder as they get nearer. They move very quickly and can not normally be outmaneuvered; they destroy your tank by ramming it. The first cruise missiles appear after about two minutes. When a cruise missile appears, any tank on the screen disappears. Like the other dangerous enemies, cruise missiles attack singly. They often come two consecutively, although sometimes there is only one, sometimes three. Cruise missiles are worth 2000 points.

The third type of enemy is the supertank. These are faster than regular tanks and appear more wedge-shaped. They can not be outrun, but otherwise they are essentially the same as a regular tank. Supertanks are worth 3000 points.

The fourth type of enemy is the saucer. Saucers appear and move at random across the screen, making a characteristic noise whenever they are within your field of view. Saucers can be on the screen at the same time as other enemies, but they cannot harm your tank. They are worth 5000 points.

As the game progresses, the regular tanks become more aggressive, and are eventually replaced by supertanks. In addition, cruise missiles begin to appear more frequently.

The various transparent pyramids, cubes, and oblongs that you see are harmless obstacles. When you run into one, the radar screen warns you by flashing a message that an object is impeding your path and by sounding a continuous alarm. An obstacle can not be destroyed; when you shoot one you get no points and your shell explodes harmlessly. Obstacles are useful for cover against attacking tanks, but care must be taken to avoid backing into one. Unless you react quickly, you will be a sitting duck for enemy tanks.

THE STRATEGY

There are two general rules to follow in Battlezone: 1) Don't sit still unless you can see your enemy and he is not facing you. Enemy tanks lock on to your position but can not compensate for your direction of travel. By keeping constantly in motion, you force them to meet you head-on, where you can shoot them, or from the rear. (More about tank-hunting below.) 2) Constantly monitor your radar screen. More often than not, enemy tanks will materialize outside of your field of view.

Destroying tanks requires a special strategy. The first couple of tanks will pass up chances to fire even when you

are in their sights, but your enemies soon become more aggressive and dangerous.

When an enemy tank appears, drive toward it, keeping it off to one side of the screen. The radar screen can be helpful in this; simply keep the blip near one of the lines which indicate your range of vision. When you near the enemy, drive past it for a second or two, or until the blip on the radar screen is about a quarter inch behind center. The enemy tank will stop and try to rotate toward you. Now reverse direction at full speed and when the enemy comes into view, maneuver him into your sights and fire. The enemy tank will be unable to move quickly enough to shoot you as you drive past him, and once you have him in your sights it will be all over for him. If you miss, do not stand and fight; you will usually only have one chance. Instead, continue to reverse until the enemy is on the other side of the screen, and then drive forward in a repeat of the above strategy.

Supertanks can be hunted in the same way, although you must react quickly and you will seldom escape to try again if you miss.

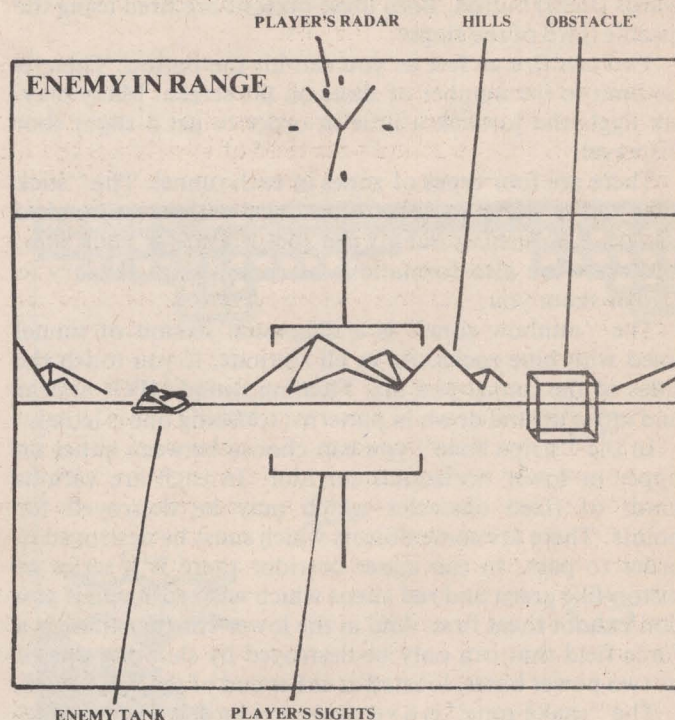
If a tank materialized behind you, you can either try to outrun it or you can maneuver it into position for the drive-by strategy outlined above. You can not outrun supertanks, and if the blip on the screen gets closer to you despite the fact that you are driving away from it, it is definitely a supertank. You must turn to meet it or you will be shot from behind. It is also unwise to try and outrun a regular tank unless it materializes near the rear edge of the radar screen. If it is anywhere near you it will have time to get you into its sights before you get away.

Maneuvering a tank that materializes behind you into position for the drive-by strategy is a hit-or-miss (no pun intended) proposition. If it is a regular tank you can sometimes rotate toward it and get it somewhere in front of you before it opens fire. Then it is a simple proposition to turn towards it while advancing and use the drive-by attack. This does not always work with regular tanks, however, and it never works with supertanks, which will shoot you as you rotate in place. Another method is to turn towards them while in reverse. This method works fine — as long as you don't run into an obstacle that is behind you. As there is no way of knowing what obstacles are behind you and where, turning while in reverse is also risky. The third method is to throw in short periods of rotation toward the enemy with longer periods where you turn in reverse. This cuts down the time it takes to get the other tank in your field of view and reduces the risk of backing into an obstacle, but adds the risk of sitting still during part of the maneuver.

Cruise missiles require a different strategy. You can't easily escape them, and usually if you do, another one will appear right away. They advance on you very quickly, so quickly that you may only get one shot at them. But you can improve your chances by going into reverse as soon as a cruise missile appears. Anticipate the general area where the missile will touch down (this can be learned by experience) and fire a shot timed to get there just as the missile reaches the ground. If you are lucky, you will hit it. If you are not, you will still have one more chance at the last instant, but only if you stay in reverse. This will give you the extra time you need for your original shot to travel to the horizon. Wait until the missile is very near and fire point blank. Be careful — the missile will often come at you from the side.

If you back into an object while retreating from the cruise missile, you can either trust in your one remaining shot, or if you have already fired, attempt to flee by driving forward and to the right. Attempting to escape in that manner will work approximately once in a blue moon.

Most Battlezone machines are set to give you an extra tank at 15,000 and 100,000 points, but the setting varies greatly. The top ten scores and initials can be recorded for posterity.



VANGUARD

Vanguard is a fast-moving and colorful spaceship game. The object is to maneuver a spaceship successfully through a series of defensive zones until it reaches a target at the end of the last zone. Destruction of the target yields a bonus and the chance to start all over again at the beginning of a different tunnel.

THE GAME

The spaceship's flight is controlled with a four-directional joystick located on the left-hand side of the control panel. There is no thrust button; the ship's speed is constant. You can make the ship temporarily speed up or slow down by moving the joystick with or against the angle of motion. The effect is temporary because you can not move past the edge of the screen.

Your spaceship can fire in four directions, but it can only fire in one direction at a time. The fire buttons are located on the right and are clustered in a group. Control the up (top) fire button with the tip of your middle finger, and the down (lower) fire button with the bottom third of the same finger. This leaves your index finger free to work the backwards (left) fire button and your third finger for the forwards (right) button. Both these buttons are fired using the middle third of the finger.

You can fire as fast as you can hit the button. There is no limit to the number of shots on the screen. Many players jiggle the joystick a little in order to get a slight shot dispersal.

There are four types of zones in each tunnel. The "stick zone" is a horizontal corridor lined with cross-hatched "sticks." Touching one of the sticks destroys your ship, and there are also formations of enemy ships that try to ram or shoot you.

The "rainbow zone" is a diagonal section of tunnel lined with blue rocks. As in all sections, if you touch the sides of the tunnel you die. Floating round UFOs appear and move up and down in patterns; touching one is lethal.

In the "stripe zone" you can choose between either an upper or lower horizontal corridor. In each are various kinds of fixed obstacles which may be destroyed for points. There are some objects which must be destroyed in order to pass. In the upper corridor there is a series of piston-like green and red aliens which will crush you if you don't shoot them first. And in the lower corridor there is a force-field that can only be destroyed by shooting one of its two power bases, located at either end of the force-field.

The "snake zone" is a vertical corridor lined with stalactites. Two kinds of snakes try to kill you. To get bonus points, let the round snakes capture you for a few seconds. You will be safe from the stalactites. This is worth 1040 points but it can only be done twice. If you try it a third time you will hit a stalactite and explode. The straight snakes are more dangerous. They will try to ram you and must simply be shot.

The "last zone" is a short vertical corridor lined with guns. All motion stops when you enter the last zone except what you input through the joystick. There is a target at the top that is worth a variable bonus of 1000-8000 points, but after a few seconds it is protected by two moving blue

barriers. These barriers have a gap in them, so it is impossible to hit the target after they appear, but be careful! The walls will suddenly sprout guns and you will have to dodge their fire while still shooting at the target.

During the early zones in each tunnel appear red energy fields. These are usually located towards the bottom of the screen. If you pass your ship through the energy it becomes temporarily invulnerable. While energized, your ship can ram enemy ships for points and even pass through walls unharmed, but it can not fire its laser. The energy field lasts about ten seconds (or for two refrains of a musical tune played whenever you become energized). When time is up, a warning sounds and you are told to "be careful." At that point the energy will last only about two more seconds.

THE STRATEGY

The most important thing to remember is to keep firing. Usually you should keep firing in the direction of travel, since that is where most of your enemies will come from, but there are exceptions, as will be noted below.

Also note that the enemy ships do not appear to home in on your ship, but rather, move in fixed patterns. With a little experience it becomes relatively easy to avoid them.

There is a different strategy for each zone. In each there is a position which is survival optimal. Gravitate towards that area, and only move from it to dodge oncoming ships or other deadly objects.

In the stick zones, you should try to stay in the vertical center of the screen about one-fourth of the way in from the left. Keep firing ahead constantly and rapidly, jiggling the ship up and down in order to get a wider shot dispersal.

The enemy ships in the early stick zones will simply try to ram you. "Harley" ships look like blue and white versions of your own and fly in straight horizontal paths. Occasionally one will accelerate suddenly, so be prepared to dodge. "Mist" ships look like something out of Star Trek, and move in erratic paths. They will occasionally pause and move up and down from ceiling to corridor floor. Be prepared for this if one gets above or below you.

Enemy ships in later Stick Zones fire missiles. You can not destroy the missiles with your laser. It is important not to spend more than an instant directly in front of an oncoming ship; keep jiggling the joystick while firing in order to get around the missiles. If you haven't destroyed a ship with your laser by the time it gets within about two inches of you, move out of the way and shoot it with your top or bottom guns as it passes over or under you.

The energy field is not all that useful in the early stages of the game. Your ship is moving slowly enough and the corridor is wide enough so that higher scores can be reached by avoiding the energy fields and blasting as many ships as possible with your laser. Once you complete the first corridor, however, the speed of your ship increases, making even the wide-corridor Stick Zone hazardous. (Later Stick Zones have narrower corridors.) It is then desirable to use the energy fields to make your ship invulnerable.

Rainbow Zones are easier. All you need to do is position your ship approximately in the center of the screen and shoot the UFOs that come in line with your guns. The enemy ships in the Rainbow Zone do not shoot at you, and they only maneuver up and down. It is possible to find a spot where you will only have to worry about attack from above and below rather than from all sides. Simply line up directly over or under an enemy ship and blast it each time it reappears.

The Stripe Zone is two narrow corridors full of fixed targets. The safest way to get through is to go through the lower corridor, especially on the second tunnel, where your speed is increased. The upper corridor has the crushing pistons, which do not materialize until you are almost upon them. The only tricky part about the lower corridor is the force-field. You can not pass through it unless your ship is energized, but it is easily destroyed. Blast one of the fixtures at the top or bottom of the field and it will snap off. Then you can get the other fixture with your top or bottom gun — each is worth 800 points.

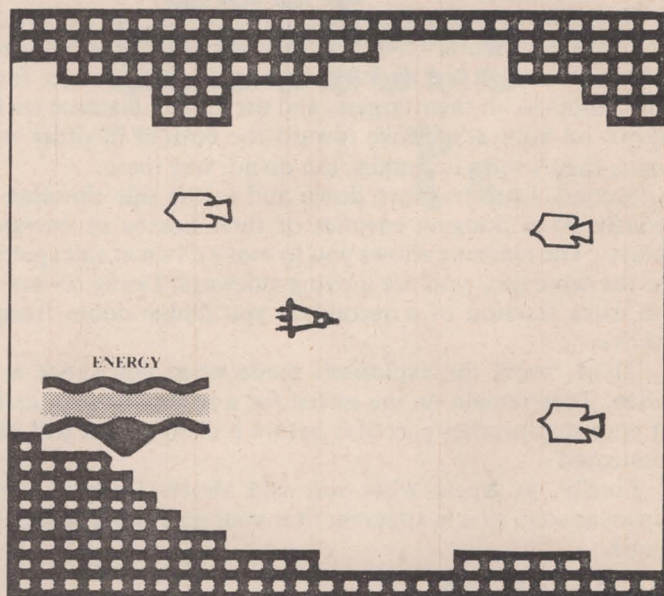
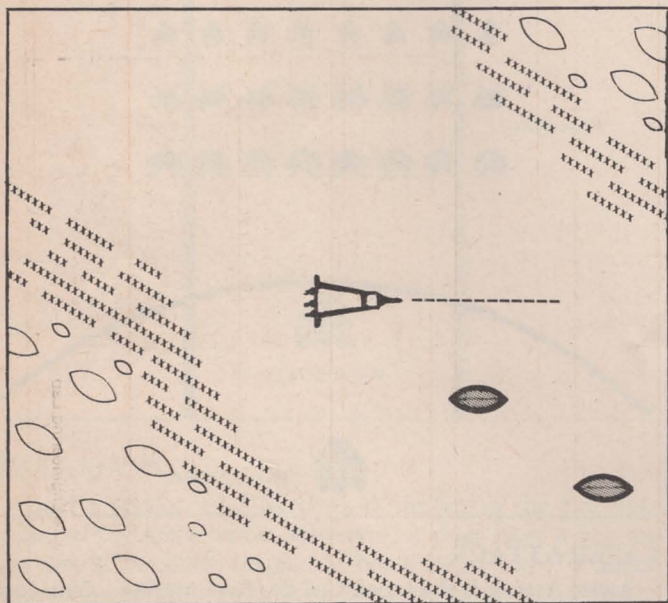
The Snake Zones are easiest of all. In the first Snake Zone you are surrounded by completely harmless coiled snakes. The only danger is hitting the side of the corridor as you travel upward. If you let one of the snakes capture you, you get 1040 bonus points. After the points have been

added to your score the snake releases you and you can try to get captured again. But be careful, because on the third capture you will be destroyed. You can also blast the snakes for points. Use your side guns.

The second Snake Zone is in the same corridor, but now you are faced with cobra-like Romulus snakes which behave like Harleys. Stay at the bottom and concentrate on clearing a path through them.

When you hear the machine say "Last Zone," immediately move the joystick to full-forward position, and move to the center of the screen and up. Keep firing your forward gun as quickly as possible. When you enter the Last Zone, all motion stops except what you input through the joystick. Move to the top of the screen as quickly as possible, firing up all the time. The target is worth 1000-8000 points. You have about three seconds to reach the top and destroy the target before it is closed off by two rope-like blue barriers. If you don't make it by then, don't give up. There are gaps in the barriers, so keep firing, but be prepared to dodge the missiles fired from the wall-mounted guns.

Extra ships are awarded at 10,000 and 40,000 points.



GORF

THE GAME

Gorf is a sort of "greatest hits" among video games. Its five different games, or "missions," include both Astro Battles, Galaxians, Laser Attack, and Mother Ship.

On most games, one quarter gives you two ships and the lowly rank of Space Cadet. Each time you successfully complete five missions you are promoted a rank until you gain the exalted title of Space Avenger, six ranks above Space Cadet. At 10,000 points you are rewarded an extra ship. Two quarters gets you the same lowly rank but five ships to pit against the Gorfian hordes.

You control a missile base with a single, pistol-like joystick. Pressing the trigger-type fire button sends a half-inch long missile straight up; your momentum is not added to that of your missile. Only one missile can be on the screen at a time. If you pull a trigger while a shot is still on the screen, your original shot disappears and the new one starts up from the bottom. Note: although it resembles it, this is not a rapid-fire mechanism. One of the most important things to learn about Gorf is to take advantage of the ability to abort a shot when you miss and quickly re-aim.

Your ship moves at a constant speed in whichever direction you move the joystick. However, it can not move over the entire screen. Its range of motion is restricted over a bottom section. Different missions allow different ranges of motion.

After mission five, the mother ship, you start all over again at Astro Battles.

THE STRATEGY

There are several general techniques which will help you improve your score. First, don't get trapped at the bottom of the screen. If you sit at the bottom, it takes longer for your shots to hit their targets, and the greater distance cuts down on accuracy. Move toward the bottom in order to evade enemy ships or bombs, but do not stay there.

Second, learn to move down and to the side simultaneously when dodging enemies or their bombs or energy blasts. The machine allows you to move down at full speed at the same time you are moving sideways. Doing so buys an extra fraction of a second as you dodge doom from above.

Third, avoid the explosions made when you shoot an alien. They remain on the screen for a second or two, and if your ship touches part of it before it dissipates, it will be destroyed.

Finally, to repeat what was said above, learn to fire again as soon as it is apparent that your shot has missed its mark.

ASTRO BATTLES

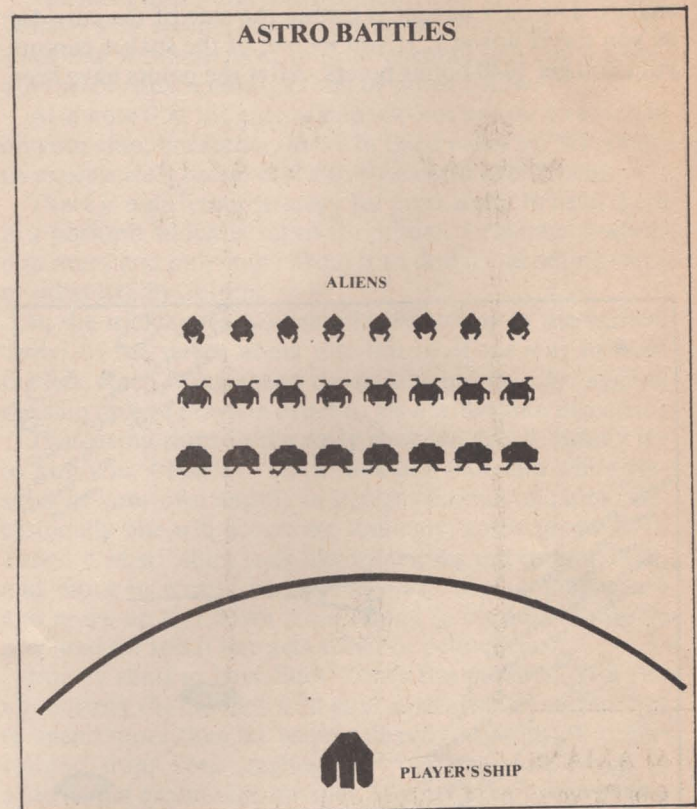
Astro Battles is a lot like Space Invaders. Your ship appears at the bottom of the screen where it has a very limited vertical range of motion — only about 2 inches. You are faced by 24 aliens which enter the screen by being dropped one-by-one from a large alien which bounces back and forth across the screen three times before disappearing. The large alien is worth 300 points. Pick him off as soon as he appears. The other aliens will come quickly shooting out of his remains to form columns which will then ad-

vance on you by moving back and forth across the screen, dropping down a space each time the end columns reach the edge. The aliens drop bombs and move faster as you shoot more of them.

You are sheltered by a force-field which covers your entire range of motion with a white arc of energy. Whenever you fire, the field blinks off to let your shot pass through. The aliens must punch holes in the force-field with their bombs in order to hit you, unless a bomb passes through while the force-field is off. Your missile cancels out an alien bomb if it hits it.

The trick to Astro Battles is a simple one. Simply stay in front of the advancing columns, where their bombs, which fall straight down, can't hit you. All you have to do is lead them a little and pick them off column by column.

Occasionally a harmless target will appear at the top of the screen. These are worth 100-250 points; if you can get a clear shot, blast them to improve your score.



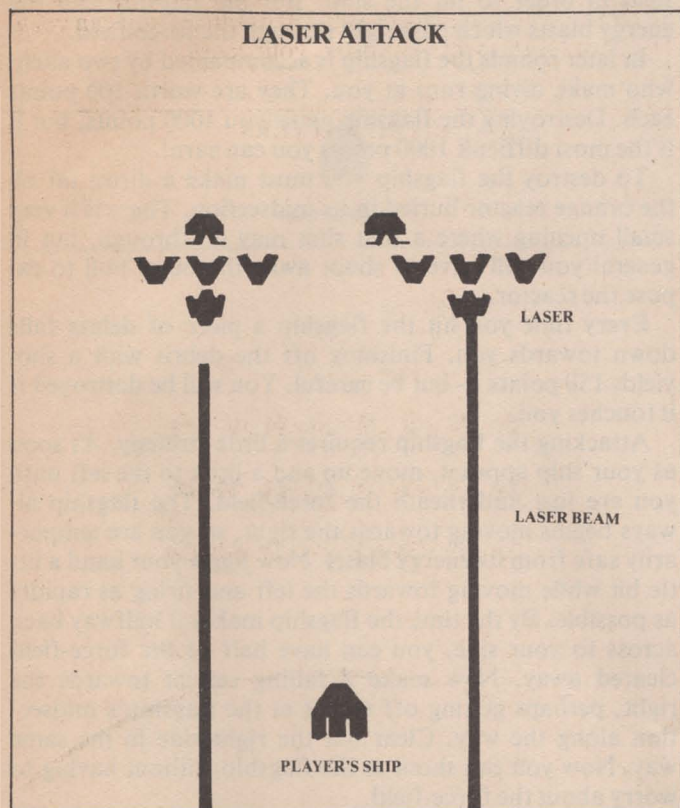
LASER ATTACK

Laser Attack is the second of the five missions. You face two laser-firing aliens (or lasers) which shoot a continuous beam of yellow light straight down. The beam lasts for about two seconds, and if your ship touches it at any time, it will be destroyed. The lasers are each accompanied by a unit of non-shooting aliens, which will try to ram your ship. These aliens can descend rapidly in a curved path.

The key to survival in Laser Attack is immediate action. The alien formations appear on the screen an instant before your ship does. Pick one of the lasers as your first

target. As soon as your ship appears, move it up and toward the laser. The laser will move towards the edge of the screen and stop, pausing an instant before firing. Following it, you should try to shoot it in your first motion, before it has a chance to fire. Then pick off as many of its accompaniments as possible. They will eventually seek refuge on the far side of the remaining laser. From there they will mount diving attacks at you.

Now the name of the game is patience. With only one laser to attack you, the Gorfians can not cut you off unless you allow yourself to sit low and in a corner. If you avoid this you should be able to pick off the diving aliens safely; if the angle looks too risky, just wait for a better shot. When there are only one or two left, move up to cut off the laser. Fire your missile near it just as it finishes firing its laser. Eventually, it will move right into your shot and you need never risk moving across the path of its beam.



GALAXIANS

Gorf's version of Galaxians is similar to the full-scale game of the same name. However, it does have a few important differences. Instead of being faced with 56 Galaxians, you only have to take on 24: a row of yellow, a row of blue, a row of red, and at the top, two squadron leaders. The yellow Galaxians are worth the least, with the point value increasing for each color all the way through the squadron leaders. Also, the Galaxians aren't as tricky and don't fly as quickly as the ones in the standard game, and you can move vertically as well as horizontally in Gorf Galaxians.

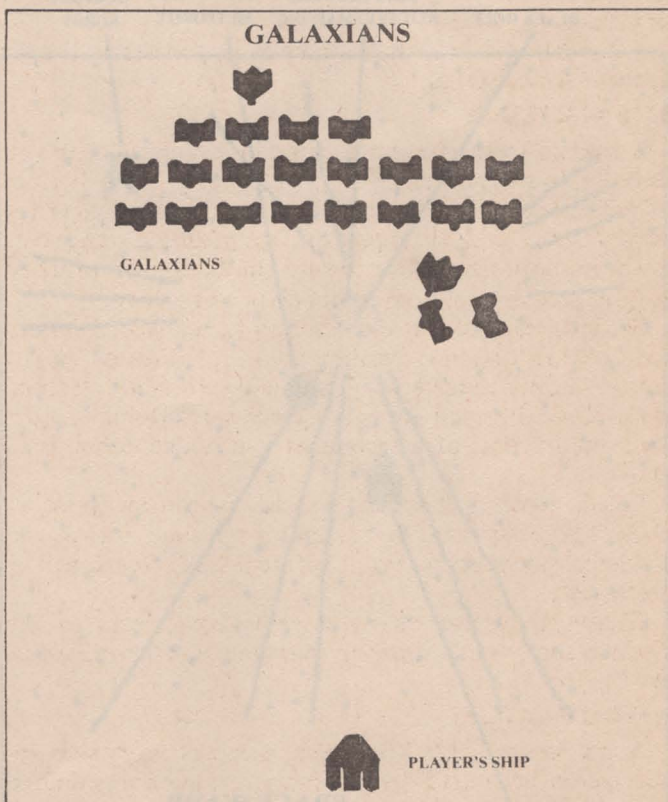
The Galaxians will peel off one-by-one or in formations and dive in curved paths towards your ship.

Each Galaxian releases one load of little yellow bombs per diving run, except for the blue Galaxians, which drop an extra bomb a half-second after the first load. Surviving Galaxians reappear at the top of the screen and go back into formation for a few seconds before making another bombing run.

Bonus points are awarded for hitting a Galaxian while it is making a bombing run. Yellow Galaxians are worth 60 points; blue are worth 80; red are worth 100 and squadron leaders are worth 300. The bonus is the same whether the Galaxian is diving alone or in a group.

To survive the Galaxian attack, move your ship as far up as it will go (about half-way up the screen) and pick off as many yellow or blue Galaxians as you can before the bombing runs start. Try to hit the blue Galaxian on the right end; it is usually the one that will attack first. Save the red ones and the squadron leaders for the bombing runs, where you can pick up their higher bonus values.

When the bombing runs start, immediately shoot the first Galaxians to peel out of formation. Then as more begin to bank toward you, fall back towards the bottom of the screen. As you near the bottom, curve over to the opposite side of the screen and move up. Your path should be U-shaped. The Galaxians will be unable to compensate in time and will dive harmlessly past. You can wait for the next attack, picking off a few each time.



SPACE WARP

In Space Warp, the fourth of Gorf's five missions, you are faced by a number of aliens which attack you one-by-one. The aliens come out of a sort of "black hole" in the center of the screen. When they first appear they are very

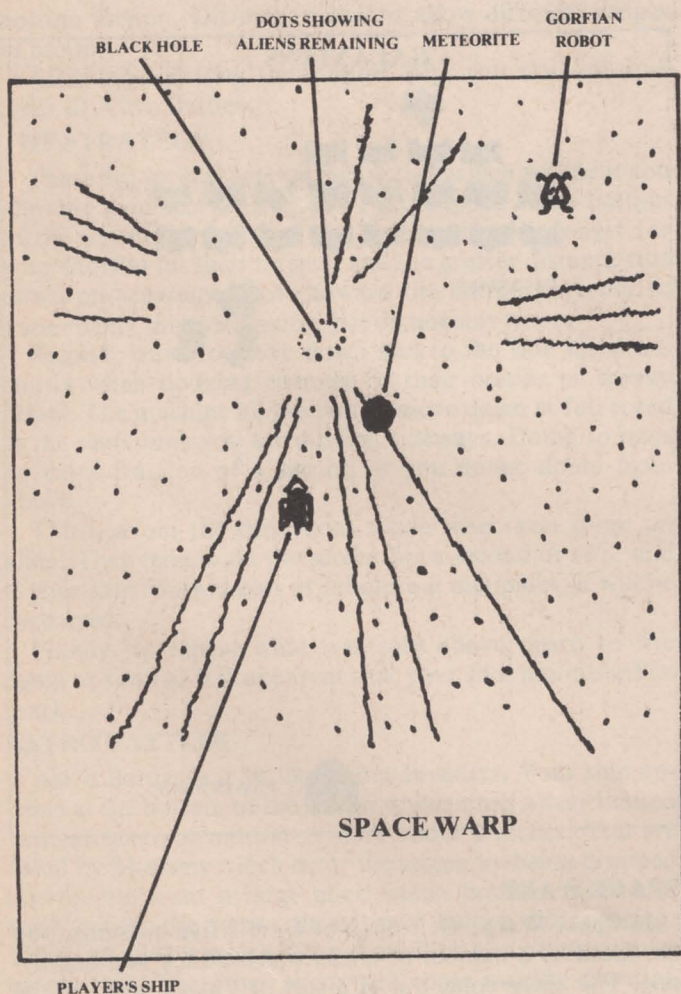
small and remain stationary for a moment before beginning their attack. Then they spiral out from the black hole in one of several elliptical paths, steadily growing larger and moving faster until they rush off the screen, never to return. While they are spiraling outward they fire energy charges at your ship. If you get hit by an energy charge or get rammed by a Gorfian as it orbits the hole, you lose a ship. The small blue dots surrounding the hole show the number of aliens remaining.

Note: ignore the orange lines that emanate from the black hole. They are harmless and apparently only exist to confuse you.

The trick to surviving the Space Warp is to destroy the aliens as soon as they appear out of the hole, before they have a chance to blast you. To do this, move your ship up as far as it will go and rapidly spray the black hole area with shots, letting a new shot go as soon as the first one has passed through the black hole or hit an alien. You should be able to destroy 50% of the aliens this way.

When you miss and the Gorfian begins to spiral outward, gradually retreat toward the bottom of the screen, at the same time moving from side to side. And keep firing. Now you will have to learn to lead the spiraling aliens. *Don't* start reflexively firing as fast as you can. This will

GORF



gain you nothing. *Do* avoid the edges of the screen, and *don't* ever sit still. The alien calculates your position but not your movements, so if you keep moving you should be able to avoid the energy blasts.

As you advance to the higher ranks, the aliens will sometimes fire an energy blast after they have disappeared from the screen, so don't relax until the last alien is destroyed.

FLAGSHIPS

The Flagship is the final mission of Gorf. The object is to destroy the Gorfian flagship before it blasts you into oblivion.

The flagship travels from side to side across the top of the screen, dropping down a little each time it reaches the edge. It is protected by a force-field similar to the one that worked in *your* favor in Astro Battles. Now the situation is reversed. You must shoot through the flagship's force-field in order to hit the ship. But the flagship can fire energy blasts which pass right through the force-field.

In later rounds the flagship is accompanied by two aliens who make diving runs at you. They are worth 100 points each. Destroying the flagship gains you 1000 points, but it is the most difficult 1000 points you can earn!

To destroy the flagship you must make a direct hit on the orange reactor buried in its midsection. There is a very small opening where a first shot may go through, but in general you will have to shoot away the outer hull to expose the reactor.

Every time you hit the flagship a piece of debris falls down towards you. Finishing off the debris with a shot yields 150 points — but be careful. You will be destroyed if it touches you.

Attacking the flagship requires a little strategy. As soon as your ship appears, move up and a little to the left until you are just underneath the force-field. The flagship always begins moving towards the right, so you are temporarily safe from its energy blasts. Now jiggle your hand a little bit while moving towards the left and firing as rapidly as possible. By the time the flagship makes it halfway back across to your side, you can have half of the force-field cleared away. Now make a falling retreat towards the right, perhaps getting off a shot at the flagship's midsection along the way. Clear out the right side in the same way. Now you can shoot at the flagship without having to worry about the force-field.

To take out the flagship, play it safe. Set up at the top of your range of motion, a couple of inches away from the side. When the flagship approaches, wait for a lull in its attack and make a very shallow U-shaped maneuver. Fire as you pass under the reactor. Eventually you will connect, and you can avoid the flying debris as long as you keep moving in the direction opposite to that of the flagship.

When the flagship has been destroyed you are promoted a rank. Your reward is a fresh set of missions, beginning at Astro Battles. This time, as the Gorfian emperor will tell you, it will be harder. Difficulty increases through round four, at which point you will be a Space General. After that the degree of difficulty remains constant.

FLAG SHIP



FLAG SHIP



FORCE FIELD



PLAYER'S SHIP

PHOENIX

The Phoenix is advanced Space Invaders at its very best. the action is quick and satisfying. Only a member of the Audubon Society would object to the game which calls for destroying warbirds that do rise up from the ashes like the Phoenix of ancient mythology.

The controls of the Phoenix are similar to those of Space Invaders. On the left are two buttons that move the player's rocket ship either left or right along the bottom of the screen. The rocket ship cannot move up or down.

On the right is a fire button and a force-field button that creates a defensive field when attackers come too close.

The object of the Phoenix is to destroy an alien and his large space ship. However, the alien only appears on screen five. To reach the final enemy, the player must fight his way throughout screens or lines of defense.

Screen one is the slowest board and involves destroying a swarm of small warbirds. The birds in screen one are not very aggressive. The birds stay pretty much together. Few break apart to attack separately. Those that do break apart do not change direction often or quickly.

All in all, screen one is fairly easy. There is only one strategy. Keep moving from side to side, avoid enemy bombs, take your time, continue shooting, and dispose of the entire swarm as quickly as possible.

The action picks up on screen two. Once again a swarm of small warbirds appears. The swarm must be destroyed. Start quickly in order to kill as many birds as possible before they break apart. The birds that break apart in board two are much more difficult to destroy than those in board one. If a bird should fly off the screen, immediately move to the far right or left and wait for the bird to reappear. The bird will literally be a sitting duck.

The player's skill as a marksman begin to be tested during wave three. Small eggs open the wave by spiralling across the screen. The player must shoot fast and accurately and attempt to knock off as many eggs as possible. When the eggs reach the right hand side of the

screen they turn into very large warbirds. Shoot at the lowest eggs first.

Just before the eggs touch the right hand side of the screen, move to the far right. The birds will gather in a vertical line above you. Shoot and you should be able to kill one or two birds before their bombs drop on top of you.

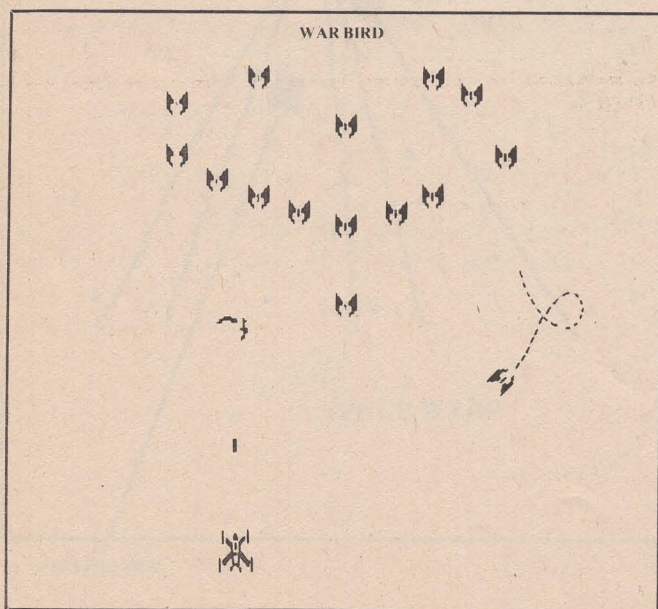
Move to the left before the bombs hit you. Some birds will move left also. Keep shooting. Another one or two birds should go down. Keep moving back and forth from left to right avoiding bombs and shooting. Get ready for screen four.

Screen four is much like screen five except faster. The birds seem to be willing to do almost anything to stop you from reaching board five and their master, the alien. Use the same strategy as board three and keep awake.

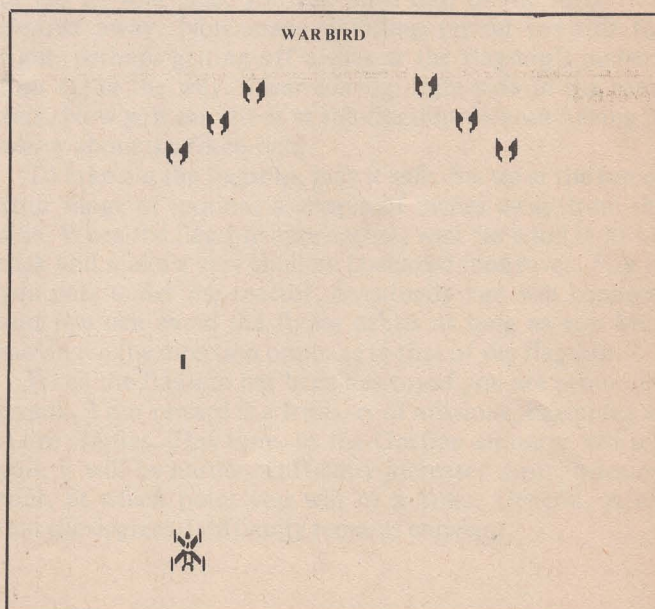
The goal of the Phoenix is to make it to screen five and destroy the alien that appears at the center of a large orange and purple space ship. The alien is protected by the ship itself as well as a swarm of warbirds that hover above the ship. Warbirds that break away must be killed quickly, for their defensive tactics are almost kamikatzé in nature.

To kill the alien you will have to shoot holes in the space ship, chipping away pieces of the ship with each successful shot. This is not easy because the player has to avoid both the birds and bombs that the alien keeps dropping. The less protection the alien has, the more bombs are hurled. Reaching the alien is not easy.

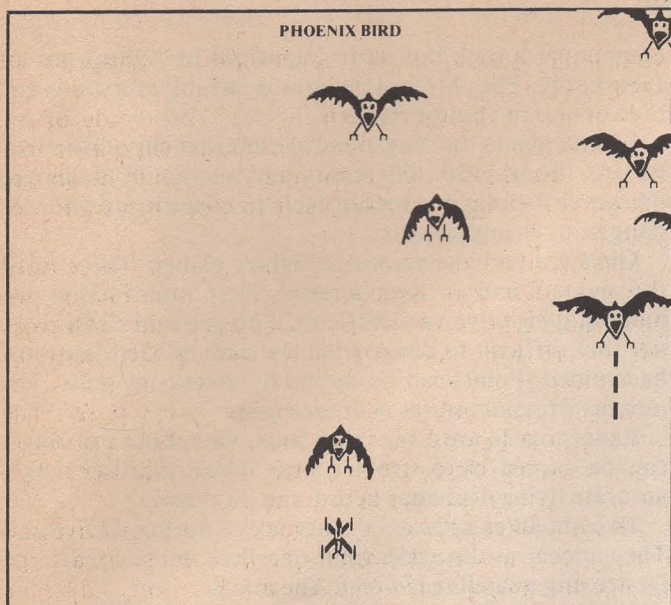
A special note: The force-field can be used on any board to protect the player's ship. Any bird that touches the force-field will be destroyed. However, when the field evaporates it takes time for it to re-energize. Also, for a moment after the field disappears it is often difficult to get off a quick shot. Use the forcefield judiciously and be aware of where you are so that you do not get caught by a bird or bomb as soon as the field disappears.



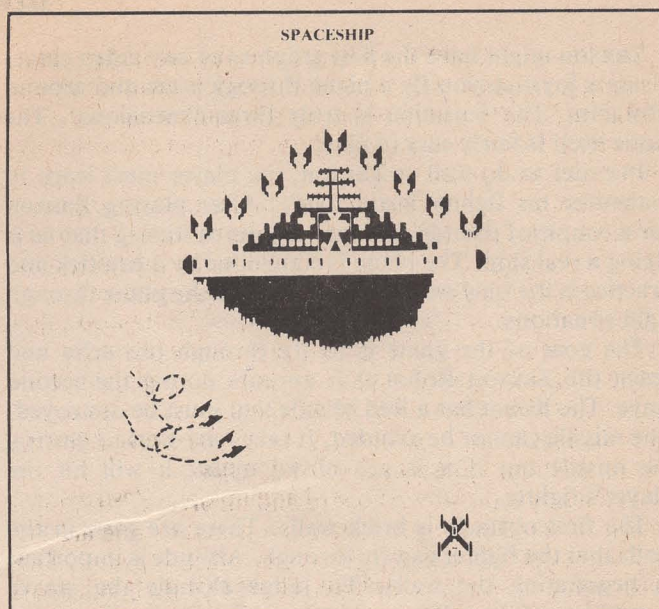
Screen 1



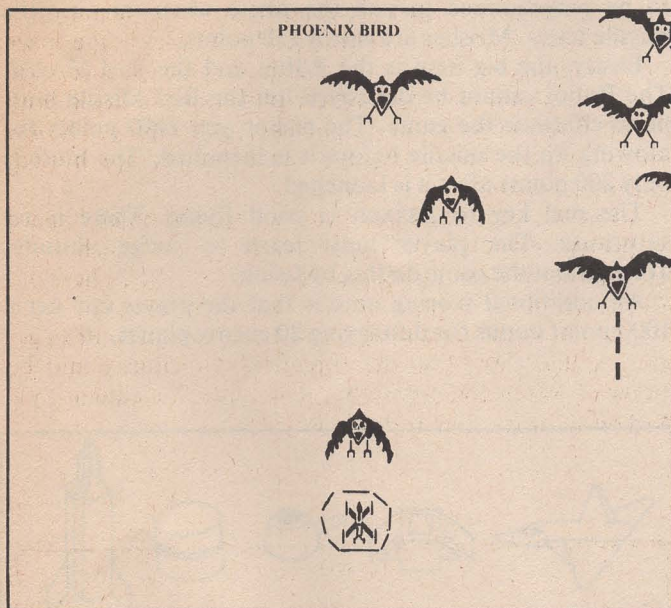
Screen 2



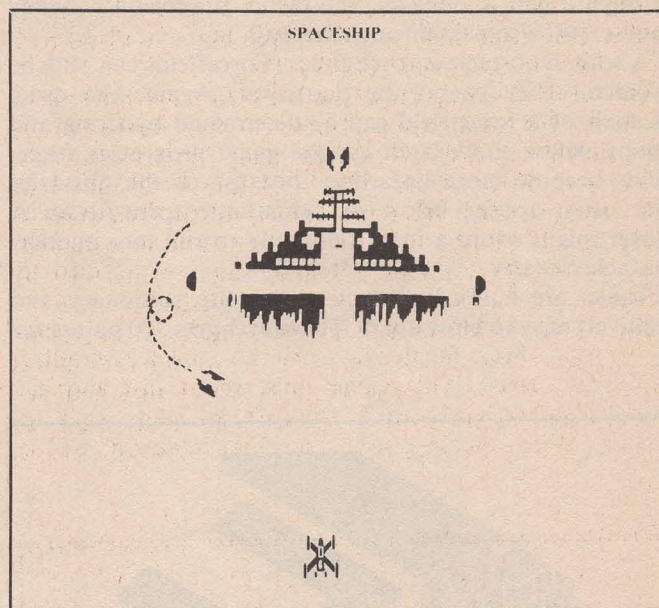
Screen 3



Screen 5



Screen 4



Screen 5

ZAXXON

Zaxxon might have the best graphics of any video game. Using a joystick you fly a plane through walls and around obstacles. The sensation is truly three-dimensional. The game itself is fairly easy to play.

In order to do well at Zaxxon, the player must learn to maneuver his fighter instinctively. After playing Zaxxon for a couple of rounds, a player can get to feeling that he is flying a real ship. The plane is controlled by a joystick and practice is the only way to learn to move the plane through tight situations.

The goal of the game is to fly through obstacles and reach the Zaxxon Robot that appears during the second wave. The Robot has a Red Missile that must be destroyed. The missile cannot be avoided. It takes six shots to destroy the missile but if it is not blown apart, it will hit the player's fighter.

The first obstacle is brick walls. There are gaps in the walls that the fighter can fly through. Altitude is important in negotiating the walls. To judge altitude the player should keep firing. Where the shots hit will give the player an accurate guide to the planes height. If a shot passes through a gap in the wall, the plane, if kept on a steady course, will also pass through the wall.

A second obstacle is force-fields. Forcefields can only be avoided. They cannot be destroyed. Again, the exact location of a force-field can be determined by firing and noting where shots land. As the game progresses force-fields become more hazardous because of the obstacles that often appear below or behind the force-fields. A player might avoid a force-field only to run into another obstacle close by.

Tanks are a third obstacle. They are stationary and relatively easy to blow apart. The player gets 300 points for

eliminating a tank but more important he replenishes his fuel supply. The player must blow up a tank every now and then or else run out of fuel.

Enemy planes on the ground are another easy-to-destroy hazard. They yield 100 points and should be destroyed whenever the player does not have to concentrate on more dangerous enemy objects.

Guns are very dangerous to fighter planes. They fire at the fighters and in later screens, their rapid action can make staying alive very difficult. The guns themselves are not that difficult to destroy but the path of their fire must be avoided. Points can be earned by destroying guns. The number of points varies with each gun.

Radar towers are a big point item. One thousand points can be earned by destroying one. Their location makes accurate flying necessary in order to hit them.

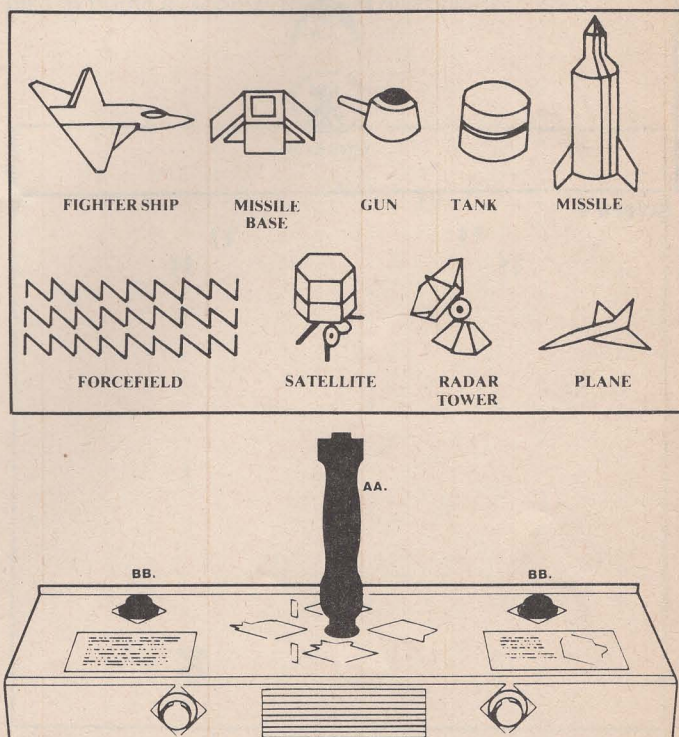
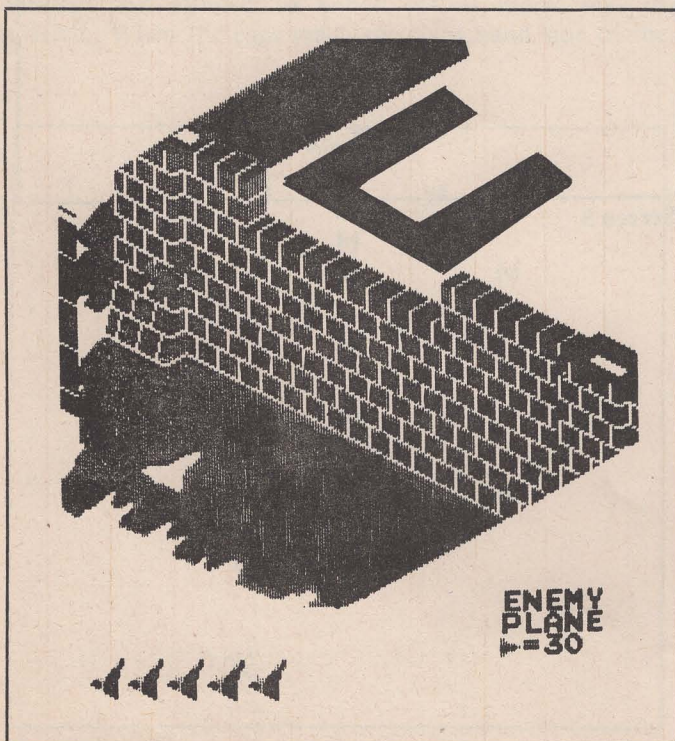
Two satellites appear in outer space during each wave. They appear at the upper limit of where the plane can fly. Destroying a satellite is worth 300 points.

Regular Missiles are another dangerous hazard. Flying over their bases is especially dangerous since Zaxxon seems to be programmed to nail the plane when its over the missile bases. Missiles are worth 150 points.

Lastly, the big item is the Robot and the Red Missile. The Robot cannot be destroyed but the Red Missile must be to continue the game. The player gets 1000 points for blowing up the missile before it is launched. The score is only 200 points after it is launched.

The real key to Zaxxon is good flying. There is no substitute. The player must learn to judge altitude. Throughout the game do this by firing.

An additional scoring note is that the player can get a 1000-point bonus for destroying 20 enemy planes.



About the Editors

J. D. Bertagna was born in South Boston, Massachusetts on Halloween of 1951. The son of a former Radio City Music Hall Rockette and a large man named Roberto "Bob", "Big Bob" Bertagna, J. D. first came to national prominence as an ice hockey goalie. It was his three-second performance as the goalie in **Love Story** that made the movie a success, launched the careers of Ali McGraw and Ryan O'Neal, and brought an end to the acting careers of Ray Milland and J. D. himself.

After graduating for Harvard in 1973, Bertagna became a school teacher at Arlington (Mass.) High School where he taught for 13 months before being dismissed in 1974 over an issue involving a trip to Atlantic City, a town automobile, and a freshman named Blanche.

Bertagna played semi-professional hockey in Italy for one year before being dismissed after an incident involving a trip to Venice, a rented Fiat, and the coach's daughter named Fabrizia.

In 1978, Bertagna returned to Harvard as Director of Sports Information where he was paid next to nothing to promote Recess for the Gifted. He gained national attention once more as editor of **Not The Boston Globe**, a parody of Boston's leading daily paper, which sold 24 copies over a two-month period.

Mr. Bertagna is the author of **Learning With Tapioca, Idaho - The Potato State**, and the much acclaimed biography, **Bert Convey: Man or What?**

Brian Sims is a 1982 graduate of Harvard University where he made the phrase "munch out" as synonymous with the Cambridge institution as Ivy covered walls, the Charles River or Perrier in the dining halls. A native of Colorado Springs, Colorado, Sims entered Harvard in the fall of 1978 and led an immediate assault on video game records. Moving from primitive Space Invaders games on through state of the art 80's favorites, Sims shattered countless records and more than a few games themselves.

In the fall of 1980, Sims became the first Harvard student in the schools' 344-year history to be excused for an exam with Pac-Man blister. Sims kept his remarkable record-setting pace through his junior year while running for the varsity track team and working towards a degree in Social Climbing.

As an oft injured miler for that track team, Sims would stay in shape by jogging between Pac-Man, Gorf and Zaxxon games at his favorite arcade. And in January of 1981, Sims set a record in the Defender to Change Machine Dash of 2.1 seconds which still stands today.

As a student, Sims took on all of the best and the brightest by enrolling in some of Harvard's toughest courses and tutorials. The result is a reputation of academic mediocrity which his efforts so richly deserved. Sims did distinguish himself as a senior, however, when his thesis, "The Effects of Asteroids Deluxe On The Iran-Iraq War", earned him summa cum laude status.

Recently married and living in Colorado Springs, Sims has virtually no idea of what he intends to do next.

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